NEW-YORK FARMER,

AND AMERICAN GARDENER'S MAGAZINE.

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D. K. MINOR, Proprietor.] FOR JANUARY, 1834. [SAMUEL FLEET, Editor.

ORIGINAL COMMUNICATIONS.

Reasons in Support of Founding, in the State of New-York, by Legislative Provision, an Agricultural Institute or School, in connection with an Experimental Farm. By the Editor.

I. Although knowledge is universally conceded to be power, yet there is, among a great portion of farmers, a strong prejudice relative to any benefits arising from the application of science to agriculture. Nothing can more clearly indicate erroneous views than such a prejudice; and it affords one of the most urgent and cogent reasons for an immediate establishment of a State Institute.

II. Two or three hundred young men well educated in the science and practice of farming, annually leaving this school and locating themselves in every part of the State, will elevate the standard of agricultural knowledge, and set that example which will be continually adding to individual and public prosperity. The lives of scientific practical agriculturists of every country strikingly illustrate the truth of this observation.

III. This number of well informed and enterprizing practical farmers, having obtained enlarged and correct views of their profession, and deeply sensible of the wants of the community, will exert a combined influence in advancing all those important interests, on which the permanent prosperity and happiness of the people depend.

IV. The best and most certain way of promoting general or universal education is to commingle well educated young men among that class whose elevation in particular is desired. Those who know, by actual possession, the value of a cultivated mind, labor to impart it to others. It is found by experience that it is insufficient to make provision for the universal instruction of youth, but there must be many in the community who prize education so high, and know its blessing so well, as to lead them to persuade and urge others to avail themselves of the means which the wisdom, patriotism, and benevolence of our laws have provided. This is the way in which all human progress is made. Even religion, the great boon of heaven, is retained on earth only by acting on this principle.

V. The higher the grade of this school, or the attainments requisite to finish a course of agricultural education, the higher will be the standard of general education among farmers.

VI. It would seem, therefore, that the liberal provision for the encouragement and support of common schools in this State, would be more effective, particularly so far as farmers are concerned, by taking a sufficient sum from the common school fund, provided the State treasury cannot immediately supply the requisite amount.

VII. The wealth and happiness of the people depend more on a prosperous condition of agriculture than on that of any other pursuit.

VIII. The productive capabilities of that portion of even this prosperous State, under cultivation, are not, under the most favorable calculation, one third developed. This is owing to a deficiency of information, and to imperfect systems of husbandry. Similar defects in any other calling not only could, but would be remedied by the diffusion of suitable information; and no one will pretend that like means will not produce like effects in farming.

IX. The comparative small amount of funds thus appropriated will be returned to the State in a manifold increase of taxable property or State revenue. Sir John Sinclair, in speaking of the veterinary science taught by governmental patronage, says: "It is not improbable, that for every pound of public money that has been in this way laid out, a thousand has been saved in our national expenditure, in the article of horses alone, employed in the cavalry and artillery."

X. Every other class or avocation in the community are more liberally provided with means, or are more favorably situated for improvement than farmers. Clergymen, lawyers, and physicians, have colleges, the studies of which are adapted to their pursuits; and besides these, there are theological, law, and medical schools for further advancement in their professions. Merchants generally receive better education than farmers, and they have greater facilities to extend that information which arises from mingling among men of intelligence, particularly in large cities and towns. Mechanics have their libraries and their associations, at which scientific lectures are given. Farmers being more isolated, and each one more dependent on the resources of his own mind, should, therefore, have a more liberal education, particularly as rural pursuits afford a greater range for the application of science than any other pursuit.

"It has not been sufficiently understood, *that agriculture is a science*, as well as an art; *that it demands the labor of the mind*, as well as of the hand; *and that its successful cultivation is intimately allied with the most profound investigations of philosophy, and the most elaborate exertions of the human mind.*"—[Gov. Clinton, in 1818.]

"Why should the countenance of the State be required for the encouragement of the arts and sciences in general, and agriculture, the most important of all arts, *the most useful of all sciences*, be alone proscribed from the participation of its bounty?"—[Gov. Clinton in 1819.]

XII. The more general and the higher the education of farmers the greater will be the preponderating influence of the agricultural population; thus counteracting any undue influence that might arise from the rapid increase of manufactures.

XIII. The rapid succession of great changes and improvements in most pursuits, arising from the application of science to machinery and the arts, requires increased efforts and means to sustain the relative advancement of agriculture.

XIV. It is universally conceded that scientific and literary attainments, or a superior appropriate education, adds to the qualifications of divines, lawyers, physicians, statesmen, and naval and military officers. If so, why, in the nature of things, is not a superior scientific education, that is *equally appropriate*, as serviceable, yea, as *necessary* to farmers, mechanics, and merchants? If law, medical, and theological schools do not make the lawyer too proud to plead at the bar, nor the physicians to be seen in a sick chamber, nor the theologian to supplicate the blessings of heaven: why should it be thought that an agricultural school should make a young farmer feel above holding the plough?

XV. If benefits that could be reasonably expected are not realized from the establishment of such a school, the failure will arise from unfavorable circumstances, or from the incorrect views of those who shall have the government and regulation of it; and in that case, renewed and repeated trials must be made until the object is obtained. If it then shall be truly and emphatically a farmers' school, it will be the favorite and most popular institution in the country; and will be abandoned by farmers when rivers cease to flow, and when the clouds forget the parched but once verdant earth.

XVI. The union of mental and bodily exercise modifies the passions and prolongs life. Of all professional and learned men, natural philosophers live the greatest average number of years; and consequently, from the nature of their employment, farmers should live longer than any other class of people; but those of several other pursuits supposed to be more unfavorable to life, see a greater number of years. In our own country nothing is wanting, we confidently assert, but the record of facts, to prove that the best informed and most scientific practical farmers live, in like circumstances, to a greater age than those who spend less time in cultivating their minds. An agricultural school would give a general, powerful, and lasting stimulus to mental culture among farmers, and thus promote their health, prolong their lives, and increase their happiness.

The following communication is from a source that entitles it to much consideration.

Superiority of the Live Stock at the Albany Fair—Relative Merit of the Durham and Devon Cattle. By H. C. [For the New-York Farmer.]

Mr. Fleet—I was highly gratified at the recent Cattle Fair, held at Albany, under the auspices of the New-York Agricultural Society; and have great pleasure in acknowledging the politeness and hospitality of the respected President of your Society, and other gentlemen concerned in your exhibition, which rendered my visit instructive and delightful. This, I was told, was a first attempt; and the weather was extremely inclement, the mercury, on Thursday morning, being at 14 degrees, and the winds high and searching; yet the success was such as to

encourage future and persevering efforts. Such exhibitions have always been found, where judiciously managed, in the highest measure conducive to the advancement of the agricultural interests. There was wanting here, however, the powerful and animating stimulus of pecuniary or other premiums, which are not without their effect upon the most honorable minds; and which are particularly needed by those upon whom less interested motives can scarcely be expected to operate, to excite to a spirited competition.

The show of live stock was exclusively, though not intentionally, confined to the improved foreign breeds. I have had the pleasure of seeing the fine stock of John H. Powell, at Powelton, Penn.; C. H. Hall, at Harlaem, N. Y.; Joseph Perry, at Hoosac, N. Y.; James D'Wolf, at Bristol, R. I.; T. Williams, at Chelsea; Samuel Jacques, at Charlestown; E. H. Derby, at Salem; and Governor Lincoln, at Worcester, Mass.; and single individuals of the improved breeds in various places; but never before saw so many collected, and so superior of their kind, as to convince the most sceptical of the extraordinary excellence of the stock; and to excite a strong sentiment of admiration of the enterprzie, skill, and perseverance, by which such surprizing alterations and improvements in the form, size, and condition, and general appearance of the stock, had been effected.

Among so many fine animals it might seem invidious, and in a stranger, perhaps, improper, to particularize any individual animals; but a bull of twenty months old, belonging to Gen. Van Rensselaer; a cow belonging to the Patroon; one belonging to Mr. Bement; a cow, a bull, and a yoke of oxen, belonging to C. H. Hall, Esq.; were extraordinary fine animals. There were others, not perhaps inferior, but the names of their owners have escaped me. These were all of the improved Durham short-horn. There was a pen occupied by a number of the Devon cattle, descendants of the stock formerly presented by Mr. Coke, of Norfolk, Eng. to Mr. Hurlbut, of Berkshire, Mass. which were exceedingly attractive and beautiful. The sheep and hogs, though few in number, were quite remarkable. The Dishley wethers, and ewes, and swine also, from Mr. Thomas Dunn, of Albany, and the Southdown sheep, and the Berkshire swine, exhibited by Mr. Hawes, late of England, now of Albany, were very superior animals; and their introduction into the country must prove a great public benefit. If we suppose, with some persons, that these new breeds of animals are not superior to what we already possess, yet the mere exhibition of what may be done by systematic and skilful attempts to form or improve a particular race of animals by selection, crossing and combining, is a most valuable lesson to those who think well of our native stock and are desirous of its improvement.

The improved Durham short-horns have still strong prejudices to encounter in New England. The butchers are almost unanimously opposed to them on account of their color, which is probably a mere prejudice; and because, they say they do not prove well, that is, they have a small proportion of tallow. The farmers say, they require feed in proportion to their size; they are not suitable for the yoke; and they are inferior as dairy stock. How far these notions are well founded, time and further trial only can determine. Farther and exact observation and trial of them, in these respects, are extremely desirable; and we hope will be fully made.

Whatever may be said, or hoped for, in regard to them, it is certain that good keeping is absolutely essential, in order to have fine animals. Though it is by no means invariable, yet, in general, large animals require more food than those of a small size; and abundant secretions of milk are seldom combined with a strong disposition to fatten. It may ultimately be found, that as a race of animals, they will prove better suited to the luxuriant and fertile lands of the middle and western States, than to the short and stinted pastures of New England. I believe that the Devon stock will be found the best breed for us. I am not prepared, however, to speak with great confidence on this subject; for though my raised expectations have been sorely disappointed in several of the short-horned cows that I have owned, many other persons within my knowledge have been more fortunate. H. C.

Mixing Old and New Wheat. By J. B. [For the New-York Farmer and American Gardener's Magazine.]

MR. FLEET,

Sir,—In your valuable publication, the New-York Farmer and American Gardener's Magazine for November, page 327, I noticed an article signed R. M. W., in which he appears to contradict the assertion of the Farmer, relative to the English mixing old and new wheat; and he (R. M. W.) states that he can know no reason why they should do so. Not having seen the article alluded to, I can offer no opinion whether the Farmer is right or wrong; but that the English do mix old and new wheat is a fact I know from actual experience; and as it is a process which, in some seasons, is of almost vital importance, not only to the farmer, but to the community at large, I could not help offering my mite towards throwing a little light on the subject. If R. M. W. is a farmer, he must certainly be aware that his grain, when he takes it from the field, contains a much greater quantity of moisture than that which has been in his barn for the last twelve months, and that he cannot get the same quantity of fine flour from a given quantity of new, as he can from old wheat, and what he does get being much damper than from the old, will consequently take less water in the baking, and be more likely to make damp, heavy bread. If such is the fact here, how much more so must it be in England, the climate being so much more humid. It frequently becomes a difficulty there for them to save their grain at all. This custom is generally adopted for about two to three months after harvest; it is then supposed that the new wheat has sufficiently undergone the operation of sweating, and is sufficiently dry for the miller. The reason why they mix the old and new wheat is, that the old being so much drier than the new, it will absorb the superabundant moisture, and thereby give strength and body to the flour.

In Ireland, where the climate is still more humid, the farmers are, generally speaking, poor, and consequently have poor accommodations for preserving grain, and nine-tenths of the wheat is kiln-dried before ground. I have known wheat to lose eight to ten per cent. in drying. As there is no calculation how soon we may have an unfavorable harvest, and the object of good bread being one of paramount importance, I was induced to offer these hasty remarks. Should you think them sufficient evidence to convince R. M. W., or any of your readers, of the utility of the practice, by inserting them in the New-York Farmer, &c. you will oblige yours, &c. J. B.

Lawrenceville, N. J., Nov. 23, 1833.

Cultivation of Peach Trees. By R. H. B.

[For the New-York Farmer.]

Peach trees may be preserved, by good management, twenty, and probably forty or fifty years. They are destroyed from north latitude forty to thirty-six degrees, by a worm which feeds on the inner bark of the tree, at its root. This worm is said to be the offspring of a fly of the wasp kind, which deposits its eggs in the bark of the root of the tree while it is young and tender. The remedy consists in searching for the openings in the bark at the root, and taking them out. If this operation is repeated three or four springs, the worm never after can make a lodgement there. The bark of the tree by this time becomes so hard, that the fly cannot make the puncture, in order to deposit the egg, or if deposited it perishes. After the worm is cut out in the spring, draw the earth up around the body six or eight inches above the other ground.

Of all the fruit trees produced in this climate, none bears pruning so freely as the peach; indeed, it should be treated very much as the vine is. All those branches which have borne fruit should be cut out, if there is young wood to supply their places. Proof—take a limb which has borne two or three crops of fruit, and notice its produce; take another on the same tree, which has never borne at all, and the fruit on this last will be twice the size of the former, fairer, and less liable to rot. In pruning, the branches should be taken or cut out of the middle of the tree: thus giving more air and sun to the fruit on the outer limbs.

The peach tree produces best fruit when the ground is not stirred about it while the fruit is on. When it has no fruit, it should be cultivated as carefully as a cabbage, or any other plant.

The above comprises the most important points in the rearing of peach trees, and good fruit; if attended to, I have never known them to fail,—and my experience has not been very limited.

I repeat what may, perhaps, be doubted, that the peach tree, if the worm is kept out of the root, will live, at least, twenty years; and that this may certainly be done by attacking them the first year of its growth, and continuing to extract them for three or four years in succession, not forgetting to draw the earth up as directed. Straw, chips, or trash of any kind, serve the purpose just as well.

Very respectfully, yours, &c. R. H. B.

Washington City, Nov. 26, 1833.

Inflammable Gases in the Town of Middlesex. N. Y. By RATIO. [For the New-York Farmer and American Gardener's Magazine.]

——————Cœlique vias et sidera monstrarent,
Defectus solis varios lunæque labores
Unde tremor terris.—VIRGIL.

MR. FLEET,—In my neighborhood are numerous burning springs, which have occasioned much speculation. A hill about 4 miles west of me abounds with numerous currents of air, which are inflammable. The

air is cool, and frequently comes out in water, and on being touched with a candle, will take fire and burn until it is extinguished. It does not appear to heat the water, but is used to boil sugar, to heat a stove, and for other domestic purposes. The phenomenon appears to me explicable, if we consider that, in all human probability, there is, deep in the earth, a quantity of iron pyrites, overlaid with a bed of mineral coal. The pyrites having the power to decompose or to retain the oxygen, and let the hydrogen escape, this hydrogen escapes through numerous crevices in the slate-rock, which composes the hill. This air, in passing through the coal, imbibes a species of asphaltom and sulphor, as is known by the smell, and the deposit of a bituminous soot. But I think, if properly purified, it would answer all the purposes of artificial gas for lighting our dwellings. Your's, &c.

RATIO.

Potter, December 17, 1833.

Employment of Gardeners as Teachers of District or Common Schools. By the EDITOR.

In taking a survey of the present and probable future wants of society, it is a matter of some urgency to ascertain the existing sources of supply. That there is a *great* deficiency of competent teachers for our preliminary as well as higher schools, is a fact universally known and deplored; and it is quite generally known, that the consequences attending the difficulty which, in this country, gardeners experience in getting employment in winter, arrest the progress of horticultural improvement, by discouraging them, and by causing them to be much less stationary and settled than is consistent with their own good, and that of their employers and of the public.

The state of the rural community of the United States is such, that a very increased and general attention would be given to vegetable and ornamental gardening, if well qualified and industrious gardeners could be obtained during the vegetating and floral season. But, owing to this difficulty, the gardens generally throughout the country are not only destitute of ornament, but confined to a few of the coarser vegetables, or to the growth of noxious weeds. Except in the immediate vicinity of cities and large villages, there is comparatively no demand for gardeners; and even when they are invited to go any distance into the country, there is so little encouragement of a permanency that they generally find it necessary to stipulate for the expenses of their journey to be defrayed by their employers. This double discouragement acts injuriously upon the habits of gardeners, and prevents even those who are disposed to enjoy the comforts and pleasures of a fine garden from being gratified.

Respectable gardeners have generally a good common education, and often possess very considerable science, particularly of botany and its sister studies; and from the fact of having had their views extended by travel, and by being conversant with those possessing wealth, taste, and education, they are, in these respects, far better qualified to take charge of district schools than the majority of those who occupy the station. All that is requisite for most young gardeners in particular is to employ their leisure in improving their penmanship, arithmetic, geography, and grammar, and they become, provided they possess the requisite moral character, a very important and highly useful class of teachers. Let a professed gardener enter a country village, and alternately in winter and summer act in the capacity of a teacher and in that of his profession, and in a very few years he would entirely alter the character of the gardens, and cause them to be sources of numerous engagements and of high delight.

On the supposition that gardeners in education and character will compare favorably with those who are deemed qualified for the instruction of youth, they are calculated to do more good from the nature of their profession; by a natural consequence, fostering a taste, and producing those associations, in the minds of their youthful charge, that will lead them to be charmed with the beauties and avocations of rural life: they would favor the introduction of those studies that tend to illustrate the profession of agriculture, the most honorable and important of all professions, and thus become the instructors of both theoretical and practical botany.

The greater proportion of foreign gardeners who come to this country are from England, Scotland, and Germany; and, with few exceptions, they have served a regular apprenticeship at the business under circumstances that render them a great acquisition to the country. When they come among us they are generally a fine-looking, healthy, and robust set of men, whose habits and moral character will not suffer in comparison with the generality of our citizens. But owing to disappointments, to unsettled life, and to a want of regular employment, some of them, as we should naturally expect, suffer in disposition, amiableness, and respectability. Let them, however, set their aim higher, and qualify themselves to form closer and more endearing relations with society, and much, very much good will result to themselves, to their families, and to their country.

The Meteoric Phenomenon on 13th November, 1833—Keeping Diaries or Daily Journals. By SENEX. [For the New-York Farmer and American Gardener's Magazine.]

MR. EDITOR,—The brilliant appearances which took place on the 13th of the present month appear, by the various accounts, to have been observed from Florida to Canada. I have expected that some speculations on the causes or probable effects of so singular a phenomenon might appear in the public papers, but as yet have been disappointed; nor can I pretend to throw any light on the subject, being quite unlearned in matters of this kind. Reading these accounts, however, brought to my recollection a similar appearance which took place in Scotland many years ago, and which I had marked in my daily journal at the time. On looking into the abstract of that for 1779, I find the following noted: "On the morning of the 13th November, from 5 to 8 o'clock, a great many meteors or balls of fire were seen in the air, breaking out with a great flash, which was succeeded by a long streak of light, something like the aurora borealis; and, in the intervals between the larger flashes, a vast number of the small meteors, commonly called falling or shot stars. Many people dreaded that these meteors portended no good; but they were mistaken. On the afternoon of the 13th was indeed a very heavy rain, but it was succeeded by several weeks of mild, calm weather, which gave many people an opportunity to finish their shearing, but was extremely against keeping it in the stack, the greater part of the ricks being obliged to be twice turned, though all built with air vents." That a state of the atmosphere capable of producing this phenomenon should take place on the same day of the month and hour of the day, at such distance of time and place, and at no other intervening period in the course of thirty-four years, appears singular. In the account of that of the 13th inst. given in the New-York Advertiser of the 19th, it is stated that the writings of Humboldt contain a description of a similar appearance, observed by Bonpland at Cumana, which happened on the 12th of November, but the year is not mentioned. I think it probable it has been in 1799, but should be pleased to know. [In 1779, we believe. One occurred in 1790, on the 12th of November—see cover of our last number.]

In looking over the journal before mentioned, I could not but remark the similarity of that season to the present. That of 1799, spring, summer, and autumn, was one of the coldest and wettest on record; the crop neither filled nor ripened as usual, and the harvest was not finished in the higher and northern districts of Scotland until the month of December. The season of 1833 has been in many respects similar; although the crops, with the exception of Indian corn, have not suffered like those of Scotland in 1799, yet the season has undoubtedly been colder and wetter than the average of seasons in this country. It may therefore be presumed that the phenomena in question have been produced by similar states of the atmosphere, resulting from a long tract of cold and wet weather. It does, however, appear somewhat wonderful that they should take place on the same day and hour of the year in both instances.

Philosophers may perhaps account for this phenomenon, and explain its causes in a satisfactory manner. It is however scarcely probable that any well-founded opinion can be formed as to its future effects on the weather or season; or whether it may have any influence whatever in that way.

I find by these journals that the winter of 1800 was one of the most severe that had happened for many years. A heavy fall of snow commenced the 2d January, which covered the ground above two feet deep, and remained until the first week of March, a thing very uncommon in any part of Britain.

I think it rather improbable that the present winter may prove a severe one, because we have had three very severe in succession, with colder and wetter summers than ordinary between. The present winter has however commenced earlier than usual; the snow lies at present about nine inches deep here, and has done so since the 25th. We have also heard of it two feet deep in some parts of this State. If it should prove uncommonly severe, it might be considered as a singular coincidence, yet may have no connection with the phenomenon in question, or it may, for aught I know. To state facts, however, can do no harm, and may be useful.

I shall finish this communication, already much longer than I intended, by recommending to your juvenile readers, commencing farming operations, the propriety and pleasure of keeping a daily journal. I can, from

forty years' experience, say that this practice will be found both very useful and agreeable; with me it has long become a habit, which it would be difficult to give up. Besides the facts and observations regarding the farm and garden which it contains, the journal is often referred to for ascertaining facts, dates, and domestic occurrences, regarding which doubt or dispute happens to arise. I can also add, that looking back sometimes into its pages has not unfrequently afforded me pleasure by recalling many agreeable recollections of past scenes, and of old and dear friends, many of whom have left the stage of life. And let it not be supposed that the keeping of a journal is to cost much either of time or trouble: three minutes each evening, and from three to six lines of an octavo page, may be stated as quite sufficient for the average of the year. It is also a very agreeable amusement, as well as very useful, to make an abstract of this journal once a year; this affords a concise history of the farm, and the operations and improvements that have been made from time to time, which will be found more and more interesting to the owner the longer it is continued,—the weather, seasons, experiments, facts and observations of every description too various to be enumerated.

The opinion of your correspondent, *A Subscriber*, page 10 of January No., 1833, regarding the importance of noting and publishing facts that occur in farming operations, is perfectly just, and forcibly, though briefly stated. I am, Mr. Editor, yours, &c.

SENEX.

Saratoga County, 30th Nov. 1833.

REMARKS.—Would it not be "very useful to make an abstract of this journal once a year," for the New-York Farmer?

The phenomenon of Nov. 13, 1833, was seen in Mexico and South America.

Produce exported from the Sciota Valley. By F. E. ROBINSON. [Communicated for the New-York Farmer.]

DEAR SIR,—I have this day been making some calculation from minutes that have been some time in my possession, upon the amount of produce exported from Sciota Valley from the 1st of September, 1832, to the 1st of May, 1833, with which I suppose you will be interested, since you have given yourself up to agricultural pursuits.

From the head of Sciota to where it empties into the Ohio is about 150 miles, and with its tributary streams passes through about five counties, and much of its produce is taken to those counties bordering on the Lake, so that we have no means of estimating none but such as passes off by the canal.

There was packed during the time before mentioned about 38,000 barrels of pork, worth here $8 per barrel, making	$264,000
Amount of hogs driven on foot to eastern markets 10,000, average weight 200, at $3 per cwt.	60,000
Fatted and driven off 9,000 head of cattle—average weight 700 pounds, at $4 per cwt. - -	252,000
40,000 barrels of flour at $3 per barrel, - - - - -	120,000
Besides butter, lard, hemp, wool, feathers, &c. which, at a very moderate calculation, amount to	10,000
	$706,000

It is very probable that the above amount will be increased 33 per cent. during the coming season this year. There is one house that is putting up between 9 and 10,000 barrels of pork in this place, and several others that will pack from 1 to 4,000 barrels.

When we consider that the above amount is exported from so small a tract of country, where agriculture is yet in its infancy, and a large portion of our country in "the woods," it may well strike us with astonishment to look forward a few years and anticipate the results of well regulated agricultural pursuits.

Your obedient servant,

F. E. ROBINSON.

Chilicothe, Dec. 8, 1833.

In mercy spare me, since I do my best
To make as much waste paper as the rest.

SOMEBODY.

TRYING EXPERIMENTS.—*Mr. Fleet;* I was once in the habit of trying experiments, observing the phenomena and reasoning on them, in order to discover the causes of the phenomena observed. With this view, I have taken a lump of new burnt lime, laid it on a board, poured on a little cold water, the lime was speedily very hot, a vapor arose from it, and it was soon reduced to powder. I would inquire whence this heat? What is this vapor? Is it not possible that lime has the property of decomposing water? Now, water being composed of hydrogen and oxygen, and oxygen, being elementary fire, is retained by the lime; hence the heat. And is it not possible that the vapor is hydrogen gas, which, being separated from the oxygen by the lime, and the lightest of all the gases, ascends of course. Yours, &c. RATIO.

Adaptation of Breeds of Live Stock in the United States to the Soil. By H. To the Editor of the New-York Farmer.

SIR,—In some parts of the United States much attention has been paid to the improvement of live stock, and in many instances with success; but in others the improvement aimed at has not been attained, because the varieties of soil and climate had not been duly considered. In looking over the large droves of cattle which are brought from the west every year in October and November, though you see a strange medley of all ages, sizes, and every variety of condition, yet you see the same general character; nineteen out of twenty are red and middle-horned, evidently of the same race as the Devons, Herefords, and Sussex cattle of England. In the droves of sheep, you may look at a hundred without seeing a good one, but amongst any twenty head of cattle, you can always find some good; and what these are the whole might have been made, by selection and care. Good ones would cost no more to keep, if so much, and would always fat quicker, and be worth more money.

The great varieties of soil met with require different kinds of cattle, yet on poor soils, as well as rich, most of our farmers aim more at size than symmetry, and handling is never thought of as an indication of grazing qualities.

It is much to be desired that the farmers of the west, where so many cattle are bred, would attend to the grazing qualities of the stock they rear; and it is surprizing that no breeders have attempted to establish a variety merely as milkers. Good cows are to be found here and there, but you look in vain for any uniformity of character amongst them. A permanent variety might be raised in a few years, by useful management in always selecting the best milkers to be found, and putting a bull to them which comes of a good milker. This is a main point, and not easy to succeed in. A good dairy bull ought to be clean in the head and neck, and altogether of a more feminine appearance than a common bull.

In New-England are many excellent cattle, all of the middle horned kind; by selection for several generations, some parts of that country have now a breed hardly to be surpassed, as uniting the three uses of cattle, that is, for beef, the yoke, and the dairy. Yet they have no kind bred for the dairy as the sole object. In the small territory of Great Britain are many varieties of soil, and many of cattle, say from 30 to 40, generally well suited for their places. At the head of all are the Improved Short Horns, an admirable breed, yet from their size, form, and constitution, they can only be kept in favorable situations. If grazed in summer on second rate lands, and kept on hay from the same lands in winter, they would rapidly degenerate; even artificial food would not make up for the want of quality in the grass and hay. Their early maturity would soon be lost with the wretched winter keeping so common here. In their native districts, with a moist, temperate climate, and rich soil, they are fed in the highest manner. Deep old grass land in summer, with abundant turnips, and rich hay, in well littered, well sheltered yards during winter, keep them always up to the mark. On inferior lands they would hardly live, yet there galloways would get fat; while in the Highlands of Scotland even galloways could not live. Yet in that bleak country is found a breed of cattle perfectly adapted to their situation: small, compact, and hardy, beautiful to the eye of a grazier, and much better beef than the larger breeds of the south. Indeed, the richest lands do not produce beef or mutton of so good a quality as lands of inferior fertility, especially of their own rearing. In some fine parts of Scotland the Improved Short Horns have driven out the native breeds; but, on the whole, the Scotch cattle excel all others in their situations, and there are districts of this country, such as the northern slope of the Alleghanies, &c. where it is probable the Highlanders would answer well. A few galloway cattle were several years since introduced by some Scotch settlers in Caledonia, Livingston county, New-York, but have long been mixed, and are now said to be lost. West Highlanders, for bleak mountain lands, and Ayrshires for the dairy, would be a national acquisition. Look at the noble premiums given yearly by the Scotch Highland Society for the improvement of their domestic animals, and for the promotion of agriculture in every way. At their exhibition at Stirling, in 1832, the premium for cattle alone amounted to 361 sovereigns, or about 1730 dollars, and in like proportion for sheep, swine, horses, &c. This looks like being in earnest: the subscribers know that they are spending their money wisely for an object of national importance. It would be

no difficult matter to buy at a Scotch fair ten or twenty Ayrshire cows, which would look as if all cast in the same mould, and which would yield, for three months after calving, twenty-four quarts each per day, and so on in proportion. These cows, too, would graze kindly when dry. The Northern Short Horn, used in the dairies which supply London with milk, shows in perfection the art of breeding for a particular purpose, and these breeds are invaluable. Yet in a drier climate and different soil they might not retain their qualities.

Importing cattle is an expensive and hazardous business. To make it answer, several men in different quarters ought to combine their efforts, and unity of purpose and perseverance must be found in all of them. This would be a very difficult matter. But selection from the stocks around him is in the power of any man who has capital and judgment. Cattle here are much better than sheep; for, except some merinoes and Saxony sheep, the native kinds are a strange medley, but all bad, wanting symmetry and weight. The main object of this letter is, that all stock should be adapted to the soil they are put on. I have seen Leicesters degenerating on lands where Chevoit sheep would have done well; and merinoes put on rich deep lands, where heavy sheep would have got fat. Short Horns, too, may be seen on lands where they do not find themselves at home. Yours, H.

Remedy for the Black Tongue in Horses and Cattle. By R. M. W. [For the New-York Farmer and American Gardener's Magazine.]

Mr. Fleet,—I see by the papers that a disorder called the Black Tongue is making fearful ravages among the cattle, horses, and hogs, in various parts of our country. I believe this disorder may be cured. Take half an ounce of gum gamboge, 1 ounce of aloes, 2 drachms of calomel, reduce to fine powder, add flour and water until it is of the consistence of dough, divide into 10 balls about the size of a hen's egg, and give one ball night and morning for a week.

To give the balls, take hold of the tongue with the left hand, draw it out about 2 inches, then, with the right hand, lay the ball on the root of the tongue. Let go with the left hand, and the tongue will recede, so that the creature cannot avoid swallowing it. If much fever, take 1 ounce of ipecacuanha, pour on it a quart of warm, but not boiling water, take ½ pint of this tea, and put it in a bucket of water; let the horse drink freely. But, in most cases, the balls will do the work without the ipecacuanha. For hogs, take ½ an ounce of gum gamboge, 1 ounce saltpetre, 4 quarts of charcoal in powder, 4 quarts of fine salt. Put a pint of this mixture into a barrel of swill, and give it as usual. I have rarely known this fail. I have tried it for twenty years, and always with success. The same may be given to cattle and sheep, in lieu of common salt, and I have found it an effectual preventive of most of those disorders which have destroyed many cattle for my neighbors. R. M. W.

Potter, Dec. 7, 1833.

We subjoin recipes from other sources.—Ed.

Batavia, Nov. 25, 1833.

Messrs. Editors,—In your last number, inquiry is made for the most successful mode of treating the disease now raging among the cattle and horses in the Counties of Genesee and Erie, called the Black Tongue.

I profess no skill as a veterinary, but cheerfully proffer a receipt for treatment, which has been tested with success in two decided cases in my own stable, within a few weeks. 2 oz. of copperas, 2 oz. of alum, 2 oz. of borax, and a half pint of salt, dissolved in one quart of sharp vinegar, and when blood warm, used as a wash upon the tongue and mouth, generally six times a day, for three days—after which, something more mild and healing applied, will be found beneficial. Linseed oil, or a strong decoction of sage, sweetened with honey, will soon heal the parts affected, and enable the horse to be put upon his feet again. A. C. S.—[Genesee Farmer.]

On the commencement of the disease, bleed moderately. If the blood, after cooling, appears to have much buff on it, repeat the bleeding—give a pint of castor oil; if it does not operate in 16 hours, give two-thirds of a pint. Nitre may be given at the rate of 2 oz. a day, or salts two or three times a week, quarter of a pound at a time; these may be given in a thin mush, or rather slop of bran, it being the best food for the animal while diseased.

Take half a pint of honey, one table spoonful of borax, and one quart strong sage tea, mix them well together, then take a stick and tie a soft rag to the end of it; dip it in the mixture and wash the tongue, gums and mouth, well; the more frequently the better, at least every two hours—sweet milk in the tea will do no harm, or a little nitre may occasionally be put in with good effect—be particular in keeping the mouth clean, and nursing the horse with care.

The pulse and appearance of the blood must govern as to the necessity of bleeding more than once.—[N. E. Farmer.]

An experienced farrier has communicated to the Canandaigua papers the following recipe for the cure of this disease.

Take of borax and alum an equal quantity, say 1 oz. of each to a creature, with half an oz. of copperas, pulverize them together; make a strong tea of sage (the above in it,) and sweeten it with honey. When cold swab the mouth every hour or two. After the disease is checked, oil the mouth and the cure is effected.

Mr. Goodsell,—As an epidemic canker, or disease, commonly known as the Black Tongue, is prevalent among horses in this section of the country, I take the liberty to send you the following mode of treatment, which has proved successful, with a request that it would be published.

Symptoms of the disease are, soreness in the mouth, tongue red, raw in spots, slavering.

Remedy, wash the mouth with salt and vinegar, thoroughly cleansing it; then, with a sponge or cloth tied on a stick, swab the mouth and all the diseased parts several times a day with the following mixture. Spirits of turpentine, whiskey, and sweet oil, equal parts; to which must be added two ounces of alum to a pint of the above. Bleed the horse moderately; give him for physic, half a pound of Epsom salts and two ounces of saltpetre; feed him sparingly for several days with hay moistened with salt and water, and wet meal and shorts; giving him plenty of salt every day.

To prevent the disease, keep the well horses from the sick ones, and either keep assafœtida in the manger, or tie it upon a bit, and let your horses wear it two hours each day, giving salt freely. M.

Note.—Since the receipt of the above we have conversed with a gentleman who informs us that he travelled through the country when this disease prevailed several years since, and, as a preventive, fastened a little copperas to his horses' bits, that they did not take the disease, though much exposed to it. —[Goodsell's Genesee Farmer.]

Humic Acid—Fermented and Unfermented Manures. By Ratio. [For the New-York Farmer.]

Mr. Fleet,—I would inquire whether the humic acid does not exist in recent manure as well as that which has been fermented, or is it the product of fermentation? If it exist in recent manure, I can see no good cause why manure should be fermented before it is applied to the soil; it will neither increase nor diminish the humic acid. Again you say that it is impossible to ferment a manure without losing a part of its fertilizing qualities. This I think is a mistake; if put in contact with dried clay, or other absorbents, very little, if any, of the carbonic acid gas will be lost. [We do say, and have said, the same thing.]

Again, Mr. Macaire talks about the excrements of plants. This I take to be perfectly fanciful. Living plants take little save water from the earth by their roots. The experiment mentioned by Macaire, Lindsley, and others, prove nothing in my estimation. That the root of a plant placed in two tumblers of water, one poisonous and the other pure, should mix, is not surprizing. Take two tumblers, set them side by side; in one dissolve arsenic or corrosive sublimate. Take a piece of candle wick, immerse one end in the poisonous tumbler, and the other in the pure water. We shall soon see that the waters will mix. The capillary attraction of the cotton will raise the water, and its superior gravity will cause it to descend and mix with the pure water. It is very certain that a plant cannot live in poisonous fluid; and the root when dead will act precisely as the candle wick.

Yours, Ratio.

Remarks.—The above refers to an article, Vol. VI. page 360, which contains answers to Ratio's queries. It is there stated that fermented manures absorb and retain moisture far better than unfermented—that the fertilizing properties of manure depend on the quantity of humin and humates, with presence of sufficient water to dissolve them. If humin is a compound of carbon and hydrogen, we suppose the quantity to be increased by fermentation. Professor Rennie says the quantity is very considerably greater in rotten dung. Owing to irregular fermentation of unrotted manure in the soil, and to the escape of gases, less humic acid is formed; and because unfermented manure does not retain water as well as the fermented, a less quantity of the humates is dissolved so as to be taken up by the plants. One practical deduction from the above is, that it is very poor economy to buy unrotted manure, when an equal bulk or load which has been fermented can be obtained for the same price. On a future occasion we will have more to say on this subject, particularly on excrementitious matter.

Economy of Cutting Hay for Horses—Improved Straw and Hay Cutting Machine. By the EDITOR.

It is stated in the publications of Great Britain, that the economy of using cut hay and straw has been fully and generally tested, particularly by stage proprietors, who, in consequence of the powerful competition from steamboats, were driven to contrive ways and means to lessen the expenses of keeping their horses, without diminishing their efficiency. They accomplished their objects in the substitution of cut hay for long hay. Similar circumstances have compelled the owners of stage horses in this country to adopt the same course.

Mr. Reeside, one of the largest mail contractors in the United States, has, we are informed, adopted the plan with very great saving in expense, and with much additional performance by his horses. It was the admirable condition of his stage horses that led the superintendent of the streets of this city, J. M. Bloodgood, Esq. to make inquiries, and to adopt a similar course of keeping the horses belonging to the corporation of New-York. On application to Mr. B. we were politely furnished with the following particulars:

The number of horses employed in carting street manure is generally twenty, and sometimes one or two more, or less.

In six months of 1831, when the hay was not cut, the following quantities were bought for their consumption:

January, 4,480 pounds; February, 10,304; March, 2,240; April, 15,680; May, 6,200; June, 5,000. Total, 43,904 pounds.

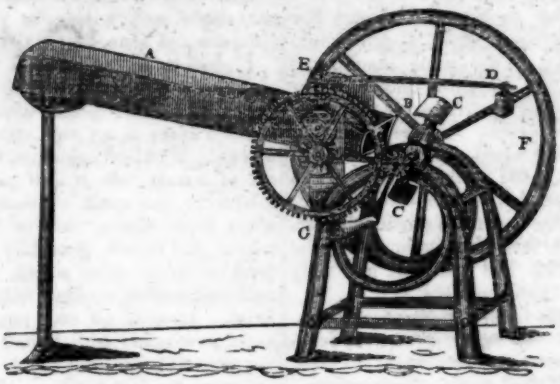
In six months of 1833—January, 4,000 pounds; February, 5,000; March, 5,300; April, 2,000; May, 7,000; June, 5,000. Total, 28,300 pounds.

One bushel of cut hay is given three times a day, with 4 quarts of ship stuff, and 2 quarts of Indian meal, at each feeding. Oats are sometimes given once a day instead of the hay and meal. Under this feeding, which may be considered pretty high, the horses, though they labor hard, are kept in much better condition than when long hay and oats were given. The present plan of feeding is considered to be a saving in expense at least one third.

One reason why the horses, on this system of feeding, are much more invigorated and in finer order, is that they are not obliged to labor all night in eating dry hay, but have time to obtain rest and sleep.

One thing is pretty evident—the time will soon come when cut straw and hay, packed in bags, &c. will be brought to this city from the "far west.

The cutting machine used at the corporation stables is that made by Mr. Johnson, of this city. The following drawing, which we take from the Edinburgh Quarterly Journal of Agriculture, is described as an improvement on that made by Mr. Johnson.



Some years ago, the straw or hay cutter took a new form, under the hands of a person who seems to have taken out a patent for the improvement. In this, the cutters are made to revolve, by being fixed upon a skeleton cylinder on the fly wheel shaft, the hay being brought forward by a pair of feeding-rollers, as had been, done on some former occasions; but in this case, the progressive motion of the hay was constant, which enabled the inventor to dispense with the machinery required for producing the intermitting progress of the hay. Immediately on passing through the feeding-rollers, the hay is protruded through a cutting-box, the face of which is worked off to an interior cylindrical surface. The cutters, which may be of any number from one to four or more, are placed diagonally upon the skeleton cylinder. The diagonal position is considered necessary for the cutters, as they thereby pass through the hay with an oblique cut producing an effect resembling that of shears, and which prevents the shock that would attend the stroke of the cutters if the whole length of its edge were to come in contact with the hay at the same instant.

From experience, however, it is now found that the oblique position of the cutters is attended with considerable inconvenience to the workmen, arising from the difficulty of setting the cutters when they have been removed for sharpening, or for any other purpose. The difficulty attending this operation may be easily conceived, when we consider that the edge of the cutters, when in proper adjustment, must form part of the sections of a cylinder, or of an elliptic curve; and hence the difficulty of its adjustment, with sufficient accuracy to insure good performance; for, unless the edge of the cutter come into all but actual contact with the lower edge of the cutting-box, the lower stratum of hay will be left uncut.

The defective position of the cutters in the hay-cutting machine having been suggested to Mr. Slight, of the firm of Messrs. Slight and Lillie, engineers, and modeland machine makers to the Highland Society of Scotland, he has rectified the defect, and has produced a machine possessing the property of having the edge of the cutters parallel to the axis of the fly-wheel on which they are mounted; and in order to retain the advantages of an oblique passage through the body of hay, the cutting-box is elongated into a nozzle, which is twisted until the mouth of it assumes an angle of about 30°. The face of the nozzle is worked off as in former machines to an interior segment of a cylinder, concentric with the shaft of the fly-wheel. By this arrangement, which is just reversing the former position of the cutting parts, the entire efficiency of the machine is retained, while its construction is simplified, the price proportionally reduced, and the keeping it in order also rendered much simpler.

The annexed cut exhibits one of these improved machines, as manufactured by Messrs. Slight and Lillie, with the framing made entirely of cast iron. A is the feeding-trough, the rollers being only partially seen. B is the nozzle or cutting-box. C C the cutter-bearers, with the cutters attached by their bolts. D is a lever and weight, which, through the medium of the bridge E, keeps a constant pressure on the feeding-rollers, to counteract any inequality of feeding. F is the fly-wheel for equalizing the motion; and G. the handle to which the power is applied. The small pinion on the fly-wheel shaft gives motion to the spur-wheel, which is mounted on the shaft of the lower feeding-roller, and carries also the lower feeding-pinion. This last pinion works into the pinion of the upper roller, and both being furnished with very long teeth, they thereby admit of a limited range of distance between the rollers, according to the quantity of feed.

With one of these machines, a man, assisted by a boy to feed in the hay or straw, can cut at the rate of eight stones per hour; and that quantity of cut hay is found to be sufficient for sixteen horses for twenty-four hours.

The machine, of which the above is a figure and description, combines, in an eminent degree, expedition and efficiency, with ease to the workman. We do not think it can be made of a simpler construction. These advantages arise in some degree from the very superior workmanship which Messrs. Slight and Lillie bestow on every piece of work which comes from their manufactory.

The Green-House. By E. [For the New-York Farmer and American Gardener's Magazine.]

It is greatly to be doubted if any more *innocent* and *refined* object of care can engage the attention of those who have leisure hours in the winter season, than a fine collection of green-house plants. The gay landscape, and the flower garden, are at that period covered with winter attire, and the vegetable kingdom reposes itself for a certain period in sleep; consequently the green-house is the only resort of the amateur and connoisseur.

As the mind often requires to unbend itself from the ordinary pursuits of life, by resorting to some social or amusing objects, the green-house naturally presents itself as a mingled variety of the beautiful—of nature's most choice gifts,—by which the most scientific or superficial observer will realize much and unalloyed pleasure.

In viewing a green-house we are presented with a group of plants that are natives of different and foreign countries; and if properly managed they present nearly the same beauty as in their own immediate vicinity. Hence the orange of Sicily and China are seen bending with their golden fruits, the *Camellia* of Japan, with its green foliage, and different varieties of clear, white, red, and striped flowers, and the no less splendid varieties of *Acacias*, heaths, &c. presenting either their buds or flowers, add variety to the scene. I must here beg leave to direct the attention of my reader to a due investigation of the different structures and formation of flowers; to this may also be added the number of parts, as male and female, symmetry of form, and lastly, some of the finest tinges of nature's pencil, uncopied by the most correct artist. And who can deny the pleasure that an attentive floricul-

turist receives in fostering these beautiful objects of nature? He duly appreciates the unfolding of a choice flower as another addition of his already varied group, and examines its parts with the most scrutinizing eye, beholding and admiring its correct color, and those appendages which nature has bestowed as its peculiar properties and characteristics. E.

Hyde Park, Nov. 29, 1833.

REMARKS.—E. will perceive that we have taken much liberty in altering, abridging, and in omitting the principal parts of his communication. We hope to have E. as a frequent correspondent, and therefore shall do what we have never done before—make a few remarks on the style of a correspondent's communication. It is very easy, for even an uneducated person, to write acceptably for a work on gardening and farming, provided he states, in unstudied, simple language, what he has seen, heard or thought; but when he begins to consult imagination, to be figurative, and to embellish, he generally grows obscure, and uses so many inappropriate words, as to render the correction of his production very difficult. We advise E. to select practical subjects, and carefully avoid inappropriate words; he will thus render his attainments serviceable to the public. E. must not be discouraged nor offended at these remarks. The first article that we ever wrote for the press, and one which we thought very smart, too, the printer laid aside in what he called his "*ordinary*." —[ED. N. Y. F.]

Cultivation of Silk at Mansfield, Connecticut. By B. STORRS. To the Editor of the New-York Farmer.

MANSFIELD CENTRE, CT. Dec. 18, 1833.

DEAR SIR,—Yours of the 30th ult. has remained so long unanswered that you may think me indifferent to the subjects of your inquiry. Not so, sir; I feel a deep interest in the growing prosperity of our country, in its various and multiplied manufacturing establishments, which are constantly springing into existence, and in none more so than in the production and manufacture of silk; none which presents in my estimation greater encouragement, both to the agriculturist and the manufacturer—none which promises fairer to become of extensive utility and profit to this country.

With regard to the cultivation of the mulberry and the growing of silk in this place, it may not be generally known that the business has been successfully prosecuted here for more than seventy years; but, though gradually increasing during this period, there has been but very little improvements in the method of conducting the business, or in the application of the raw material to manufacturing purposes, any further than the production of sewing silk and twist, and this almost exclusively confined to the labor of the family, upon the domestic spinning-wheel. But one thing has been abundantly demonstrated; that is, that the white mulberry is easily cultivated, and that the rearing of the silk-worm, and the production of silk, notwithstanding all the particularity, minuteness, and mystery, with which the subject has been treated, and invested, may be profitably pursued, with but little more knowledge or care than is requisite for the successful rearing of pigs, or poultry. Shelter them from cold, storms and wind, and feed them when hungry, whether it be in a corn-house, barn, cider-mill house, or laboratory, built on purpose for the business, a profitable crop of silk may be produced. I would not by this remark be thought to undervalue enterprize and improvement, or to treat lightly particular attention to convenience and neatness in every branch of agriculture. I highly value all the associations and societies of the present day, formed for the advancement and improvement in knowledge of the mechanic and agriculturist; but describe to a person entirely unacquainted with the manner in which wool is produced, the animal which produces it, and inform him how this animal must be reared, fed, housed, and treated, according to the practice of some of our most wealthy and scientific farmers, its peculiar habits, and liability to disease in case of neglect, and he would be very apt to conclude, that, being unable to sustain the necessary expense, he might as well not attempt to rear an animal that required so much care and labor. So with regard to the rearing of the silk-worm, there is reason to fear that the minute particularity and delicate attention to temperature, food, cleanliness, &c. &c. with which the subject has been treated by most writers, may have deterred many from engaging in it; but let them be told, and truly too, that without thermometer, hot-house, stove-room, or laboratory, the silk-worm may be, at the proper season, hatched by the usual warmth of the kitchen; and that with a rough board to lie on, and a corn-house or barn to shelter them from wind and wet, guarded also from the depredations of rats, mice, and fowls, and well supplied with the white mulberry leaf, will produce a profitable crop of silk, they may be induced to try; and having once engaged in the business and found it practicable, may then attend to all the improvements which experience and sound wisdom may dictate. Many persons in this town, who have been for twenty or thirty years successfully engaged in the rearing of silk-worms, should you talk to them about thermometers, hot-houses, and laboratories, would not know what you meant; yet, I doubt not, a due attention to these may be profitable.

With regard to the manufacture of silk in this country, much is yet to be learned; but I consider the experiment as favorably commenced, and nothing more is wanting than that some of our enterprizing and ingenious mechanics should give the subject that attention which its importance demands; and with such improvements in machinery, and the art of manufacturing, as I think the business susceptible, we may soon compete in this, as we do in some of our wool and cotton fabrics, with any portion of the world. I believe it to be a well established fact, that no part of the world now produces a better quality of the raw silk than that which is produced in this country. Since the investigation of the subject by a resolution of Congress, and the encouragement presented by the Legislature of this State, in a bounty upon the propagation of the white mulberry, and upon raw silk, the business has received a new impulse.

The Piedmont reel has been introduced, and with some improvement in the application of a stop motion. was the last season used to some extent, propelled by water and by horse power, as well as by hand, and our ingenious and industrious females find that, without any further instruction in this branch, they can, with the exercise of a little more patience than the old reel required, produce a much handsomer and more valuable article than by the former method. I have now by me a sample of a few ounces, reeled by one of our ladies, which I designed to have presented at the New-York Fair, and which I think in every respect would compete with the production of any country. Thus far, then, I think we may safely say, we *can* and *do* succeed. We have also two small silk manufacturing establishments in this town, propelled by water power, in successful operation, at which single thrown silk, organzine, tram, and every kind of silk, is prepared with ease, by persons bred to the business. The machinery is made in the manner of the most approved English machinery. At these establishments all the silk raised in this vicinity, and reeled on the improved reel as before stated, finds a ready market. Some broad goods have been made, but the business seems not yet to be sufficiently matured to go immediately into the higher branches of manufacture, but must for a time be confined to the smaller and more common articles of silk fabrics. A great proportion of the silk now prepared at our factories here is made use of in the manufacture of the Tuscany grass bonnets.

Having extended my remarks to a much greater length than I anticipated, I will mention as an apology, that having seen most of the publications on the subject which have been circulated in this country in answer to the call of Congress for information, and being well acquainted with the perfectly simple manner in which the business has ever been conducted here, I felt that a plain statement of facts, similar to those I have here given, was necessary, to counteract in some measure the influence of that scientific minuteness with which the subject was treated in those publications, and might be of public utility. Should it appear to you that I am correct in this opinion, you are at liberty to make such use of this communication as you may think proper.

Another subject of your inquiry is, whether silk-worm eggs can be procured here, in reply to which, all I can say is, I have heretofore, when applied to, found no difficulty in obtaining them, to any extent called for, and presume there would be none now. The price, from 6 to 8 cents per thousand; and as they are attached to papers, those papers may be folded and packed in small boxes and sent safely to any part of the country by stage or otherwise.

When at New-York, last spring, I purchased a small lot of the Morus Multicaulis, for the purpose of introducing them into this silk-growing region. They flourished finely last summer, and if our winter climate does not prove too severe for them, bid fair to be an important acquisition to our silk growers. As I am frequently applied to from a distance for information with regard to the value of cocoons, and of the raw silk, I will here state that we have not as yet any extensive reeling establishments, but from the success which attended the trial of the Piedmont reel the last season, I think there is encouragement to enter extensively into the business, and that probably, by another season, such preparation will be made as to afford a ready sale for cocoons, at a fair price, which is now estimated by the bushel—say $2.50 per bushel, for fair, to $3.00 for best. The worth of the raw

silk depends much on its being reeled clean, level, and fine. For the former I have paid the above prices for several lots which I purchased the last season, and for the raw silk have paid mostly from $3.75 to $4.00.

Respectfully, your obedient servant,

ZALMON STORRS.

Annual Report of the Inspecting Committee of the New-York Horticultural Society, for 1833. [Communicated for the New-York Farmer and American Gardeners' Magazine.]

The Inspecting Committee of the New-York Horticultural Society for the past season, beg leave to REPORT—

That, in conformity with the object of their appointment, they have held their weekly meetings at the Society's Rooms, from the first Tuesday in March to the same day in November.

That, at these meetings, the various objects brought before them have been examined and compared; and they have awarded the several premiums offered by the Society to its members and others, agreeably to the following list, which they recommend to the Society for its confirmation.

PREMIUMS FOR ESCULENT VEGETABLES.

To James Chesterman, Esq. Harlaem, for two quarts of Green Peas, well filled, and grown in the open air—presented the 14th May.

To the same, for two heads of early Cauliflower, the best, although not equal to that presented the previous year.

To the same, for the best two heads of Cape Brocoli, weighing 4 lbs. 6 oz, and 4 lbs. 5 oz.

To Thomas A. Emmett, Esq., for the finest early Cucumbers, raised in frame, the 6th April.

To John Owen, gardener to Mr. Laquear, Long Island, for a very fine early Cucumber, 1½ inches in length, 9½ inches in circumferenee, grown in twenty days from setting of the fruit—a discretionary premium.

To Mrs. Jones, for the finest Celery, presented the 21st August, four heads, weighing 9 lbs. 14 oz—a discretionary premium.

FOR FRUIT.

To Charles Oakley, Esq., for the finest Strawberries exhibited this season; the Methven.

To the same, for the best six Golden Nectarines, weight 21 oz.

To the same, for the finest late Peaches.

To Alexander Knox, Esq. for the best Gooseberries, 12 of them weighing 5½ oz. 3 dwts.

To James M'Brair, Esq., for two bunches Chasselas Grapes, weighing 19 and 21 oz.

To William Stiles, Esq., of Springfield, N. Jersey, for a dozen superior Pears (the Bon Chretien), three of which weighed 2 lbs. 3 oz.—discretionary premium.

FOR FLOWERS, &c.

To Alexander Knox, Esq., for six of the finest Auriculas.

To the same, for the best six Pinks.

To John Hitchcock, Esq., for the six finest Hyacinths.

To Madame Parmentier, Brooklyn, for the finest collection of beautiful Roses; and for the greatest variety of rare Flowering Shrubs—a discretionary premium.

Premiums had been offered by the Society for various other articles—but for some of them no competitors appeared; and for others a premium had been awarded to the same parties the previous year.

Agreeably to the suggestions made in a former report, the Society, early in the season, determined to gratify the community by one or more public exhibitions of ornamental plants and flowers. To further this object, medals of gold and silver were prepared and offered to such members or others as should present the most extensive collection, for beauty or rarity, on these occasions.

The first exhibition took place at Niblo's Garden, on the 15th May, and among the numerous contributions on that day, the following, in the opinion of your Committee, become justly entitled to the premiums awarded.

Mr. Thomas Hogg, the Society's gold medal, for a collection of nearly 250 beautiful and rare plants.

Charles Oakley, Esq., the Society's second gold medal, for a presentation of about 200 plants, and a superb collection of cut flowers.

Mr. William Neale, the Society's first silver medal, for 150 varieties of beautiful Tulips, six varieties of Violets, &c. &c.

Madame Parmentier, the Society's silver medal, for a splendid collection of seedling Geraniums, numerous varieties of China and other Roses, &c.

N. G. Carnes, Esq., the silver medal, for a number of rare plants—among them fine specimens of Rhododendron ponticum, Strelitzia regina, &c. &c.

Mr. Thomas Dunlap, the silver medal, for very fine plants of Camellia mutabilis, several species of Cactus, and three bouquets of cut flowers.

Messrs. Grant Thorburn and Son, the silver medal, for a beautiful collection of Tulips, &c.

On the 6th June, the Society again presented to the lovers of flowers a public exhibition, intended chiefly to bring together the numerous varieties of that universal favorite, the Rose. The display on that occasion was truly interesting; and the more so as the Committee were honored by the contributions of many of that sex of which this flower is truly an emblem.

A third public exhibition opened at Niblo's Garden on the 8th of October, but, in consequence of the inclemency of the weather, was postponed to the 11th. The collection of Dahlias brought together at this meeting gave great and universal satisfaction to the multitudes of our citizens who thronged, for several days, to admire this wonderful flower. The beautiful and varied arrangement of its petals, its extraordinary diversity of shape and of color, are all the effects of cultivation, and that of a very few years. It has been remarked, that neither in the Dahlia or Chinese Chrysanthemum have flowers of a bright *blue* yet been presented; but would not the tubes of the Dahlia bearing *pink* or *lilac* colored flowers, if planted in peat earth, or in ferrugineous soil, change their petals to *blue*, as in the Hydrangea? And may not some skilful or fortunate cultivator even add fragrance to its beauty, and thereby cause the Dahlia to rival the Rose?

In the modern discovery, that the blossoms of one plant can be artificially fertilized by the pollen of another, we are indebted for all the extraordinary varieties of the strawberry, the plum, the cherry, and other fruits. As yet the effects of hybridization among flowering plants has been attempted on a comparatively limited scale; but from the success experienced thus far, a field is opened for experiment bounded only by the vegetable creation.

Your Committee ask pardon for this digression, and beg leave to report the following premiums for Dahlias awarded on the occasion.

They were divided into two classes; the first—Seedling Dahlias.

Mr. Thomas Dunlap, the *first* premium, for ten new varieties.

Mr. Thomas Hogg, the *second*, for eight new varieties.

Mr. Michael Floy, the *third*, for seven new varieties.

These were selected from the finest of a great number of Seedling Dahlias presented by each.

The second class, or imported Dahlias.

To Grant Thorburn and Son, the *first* premium, for the finest 56 varieties.

To William Prince and Sons, the *second* premium, for 98 beautiful varieties. Many of this collection had been injured by their transportation from Flushing.

To William Russell, the *third* premium, for the finest 50 sorts.

To Thomas Kinnersley, the *fourth* premium, for 31 very fine varieties.

To Madame Parmentier, the *fifth* premium, for 24 beautiful varieties.

Such were three public exhibitions of plants and flowers of the past season; and your Committee feel themselves warranted in expressing their confidence of their beneficial effects. They would therefore hope that the Society will see fit to direct their repetition at proper seasons during the ensuing year.

Your Committee beg leave also to suggest that, in many of the gardens and green-houses of your members and others, are to be found fruits, plants, and flowers, in their several seasons, which cannot be removed to the exhibition-rooms of your Society. The beauty, and especially the *quantity* of fruit borne by any particular tree, vine, shrub, or plant, can only be appreciated by examination on the spot of its growth. Many green-house plants, like the Camellia, the Acacia, the Cactus, and others, from their magnitude and fragile nature, cannot be transported without injury. Many flowers are of that evanescent character, that they fade almost immediately after being detached from the plant; and the brilliancy and splendor of a bed of Tulips or Ranunculuses can only be judged of in their place. It might therefore form part of the duties of our successors to visit such places from time to time, in sub-committees, or otherwise, by request or permission of their owners, and to make suitable reports of all such productions as they may deem worthy of notice. Such visits to the gardens, &c., in and around our city, and the occasional publication of their results, would prove interesting, not only to the members of the Society, but to the whole community.

Some time since a quantity of the seed of the celebrated Shiraz Tobacco, and also of a number of ornamental plants, grown in Persia, were received by the Society from Sir Henry Willock, of London. The Tobacco seed was distributed, and several parcels were forwarded to correspondents in the United States, from whom no report of its cultivation has yet been received. The other seeds were also divided among the members, and the result has not been communicated to your Committee. They are, however, preparing a collection of the seeds of American trees and plants, to be forwarded to Sir Henry Willock in return; and a similar collection intended for the Horticultural Society of Berlin, who have honored this Society with a copy of their transactions. These have been placed in the library; and a copy of the New-York Farmer will be transmitted to the Berlin Society.

Your Committee cannot close this Report without again adverting to the weekly meetings of the inspecting committee, and soliciting the punctual attendance of the members. By this, and by the frequent contributions of fruits, flowers, and the various productions of horticulture, for the inspection of all who take an interest therein, the welfare of the Society will be promoted and its usefulness extended.

New-York, Dec. 31, 1833.

W. M. IRELAND, Chairman.
ALEXANDER KNOX, Jr.
WM. NEALE,
JOHN J. PALMER,
JAMES M'BRAIR,
THOMAS HOGG,
ALEXANDER SMITH,
Inspecting Committee.

The Report was accepted and adopted by the Society Dec. 31, 1833, and ordered to be published in the New-York Farmer, under the direction of the Executive Committee.

W. R. COOKE, Secretary.

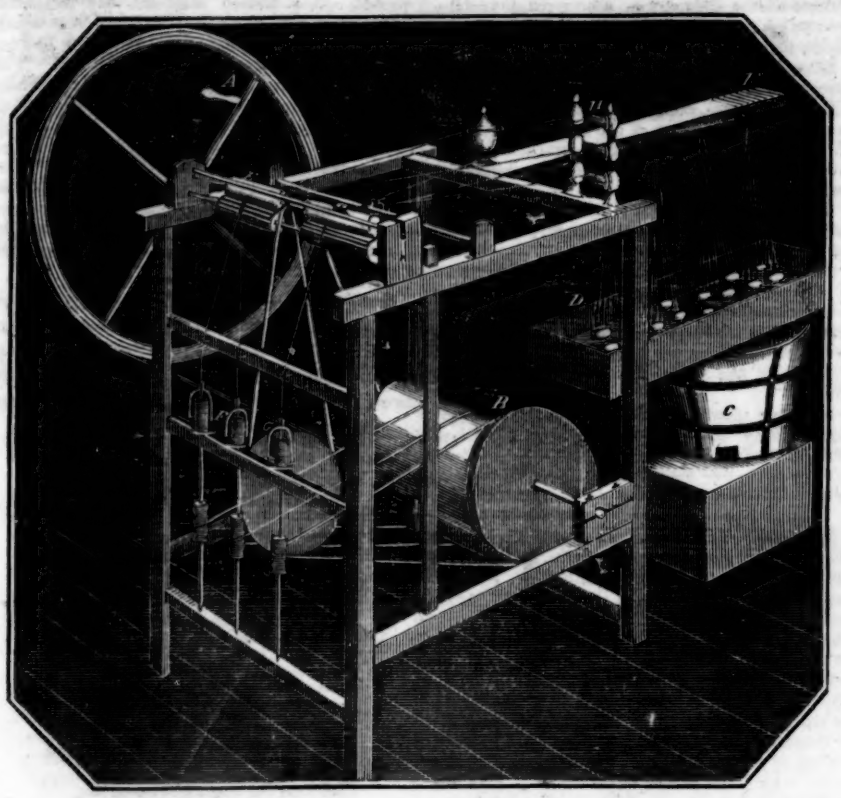
Manufacture of Silk—Reeling, Twisting from the Cocoon—Description and Drawing of Brooks' Silk Machine. By the EDITOR.

The manufacture of silk is so likely to become an important branch of national industry, that we deem it important to lay before our readers all the information that we can obtain; and shall, accordingly, give a series of articles, accompanied with drawings of the most improved machinery.

On the present occasion, we shall simply state the particulars of an experiment with Mr. Adam Brooks' machine.

After considerable inquiry for cocoons in this section of the country, we were enabled to obtain a bushel that had been, two years ago, sent on to this city, from one of the Southern States, for a market. In consequence of there being no demand for them, they had been put aside as a worthless article. They were in a box rendered tight by paper pasted over the openings at the joinings of the boards. Some of the cocoons were perforated by an insect not unlike the common moth; but generally they were in excellent order.

All the practical information we had had, was from seeing Mr. Brooks exhibit his machine in operation a few times. In connection with another person, whose opportunities of practical knowledge were no greater than our own, we took a peck of the cocoons, 485 in number, and weighing ten ounces. Without assorting them, as we should have done, we put a handful of some 20 or 40 into water about boiling hot—took a small broom and pressed them into



the water—found the floss silk adhering to the broom—gathered the silk from the broom, and kept drawing the silk until a fibre ran off singly and evenly from each cocoon—lifted these running cocoons from the water with an instrument not half so convenient as a skimmer, and placed them in a winding basin partly filled with heated water—served other cocoons in the same manner until we acquired two threads of about 100 fibres or cocoons, and carried the threads through the guide wires, between the rollers to the bobbins. Thus prepared, we began to wind by turning the wheel, keeping up the thickness of the thread by supplying additional cocoons, and collecting and attaching the ends of those that had broken. After a sufficient quantity was on the bobbins, took them and placed them in the upright posts, and carried the ends through the guides and rollers to the bobbin, for the purpose of doubling and twisting. Replacing the bobbins with two more, we then, by turning the wheel, wound, doubled, and twisted the silk at one operation. Thus continuing, we obtained from the peck 1¼ ounces of fine sewing silk, which, when deprived of the gum, by being several times boiled in soap suds, weighed one ounce. Besides this, there were 4¼ ounces of floss silk obtained from the gathering of the silk from the broom, from cocoons that would not wind, and from those that had been injured by insects, or imperfectly formed. These 4¼ ounces, after having been cleansed in soap suds, weighed 3 ounces. This floss silk is to be carded and spun for stockings and other purposes.

The sewing silk being very fine, did not, owing to the improper adjustment of the machine, give a sufficient twist; in other respects it was pronounced a fair, saleable article. When it is considered that we were entirely *green* at the business, were several times obliged, as soon as we got into operation, to omit our labors for another day, and were not in possession of the conveniences for producing a good article, our readers will perceive that the manufacture of silk for common domestic purposes is not more difficult than to spin flax or wool, which was formerly done by the females of almost every farmer's family in the country.

Our lowest estimate of the value of the bushel when made into sewing and floss silk, is $4,50. Our information, however, relative to its price, is derived from books and personal inquiries, and is extremely varied, and often contradictory. One thing is very certain, that if $2 50 to $3 50 per bushel for the cocoons, are a remunerating price to the farmer, the manufacture of them into silk in his own family must be very profitable.

The machine, the drawing of which accompanies this article, is the invention of Mr. Adam Brooks, of Scituate, Mass. It is admirably adapted for families, when sewing silk is intended to be made. The one we used is a beautiful machine, made of mahogany, in a substantial and workmanlike manner. It cost $28. Those of hard but less costly wood, and thoroughly made, are $25. With an additional bobbin, $30 and $26.

Machines made by the inventor may be had of the agents, H. Huxley and Co. 81 Barclay street.

A, the handle of the crank, giving motion to the machine. There is a band around the large wheel, passing around a small wheel attached to the axis of the cylinder or drum. B, the drum or cylinder, around which the bands giving motion to the spindles pass. C, the furnace for heating to blood heat the water in the pan D, containing the cocoons. E, the rollers regulating the supply of thread given to the spindles. F, the two pindles for twisting the single threads. G, the spindle for the double twisting or sewing silk. H, the two upright pillars supporting the bobbins containing the single thread to be double twisted. J, a projecting slat containing the leading wires to receive the threads from the cocoons in the pan D.

NEW PUBLICATIONS.

An Address delivered before the Jefferson County Agricultural Society, at the Annual Cattle Show and Fair, at Watertown, N. Y., on the 24th Sept., 1833, by DANIEL WARDWELL.

When a doctrine is advanced that militates against the harmony or beneficial effects of physical laws, we may generally, if not universally, conclude that the doctrine is false, or the evil consequences experienced arise from those deficiencies or failings of mankind, the causes of which can be removed. Among this class of opinions is the frightful one of ycleped philosophers, that population increases faster than the means of support. If we grant this, it amounts to no more than an indirect reflection on the industry and scientific knowledge of farmers. Free government, science, and religion, are the antidotes of the evils arising from increase of population.

"We believe," says Mr. Wardwell, "there are yet no definable limits to the increasing productiveness of the earth; that, by the aid of agricultural science, and the persevering energies of the husbandman, this wide earth is to become one common garden; that fields, which now produce but thirty fold, will be made to produce an hundred, and even the wilderness itself shall literally 'bud and blossom like the rose.' It is an admitted fact, by all modern writers on political economy, that population increases in the same or greater ratio than the means of support. If this position be true, (and I am not inclined to doubt its correctness,) what then are the future prospects of the American farmer? What the incentives, or rather what must be the propelling causes of improvement in the various branches of agriculture?

"The population of the United States, from 1790 to 1830, has increased at the rate of 33 1-3 per centum for every period of ten years. At the end of the present century, an age which thousands now in existence will probably live to see, there will be nearly one hundred millions of human beings in the United States, all dependent for subsistence on the productive industry of the country.

"Is it possible, that the slovenly, careless, unproductive, and exhausting mode of cultivating the earth, which at present prevails among a large majority of the farmers in the State of New-York, will obtain seventy years hence? Impossible. So long as the American press shall remain free; so long as freedom of thought and of action shall be guaranteed to the American people, and their persons and property protected by the most perfect government on earth,—so long will the human mind continue to expand and put forth new energies; truth will continue to prevail over error; right reason will obtain an ascendancy over bigotry and superstition, and science and the arts will rapidly progress towards perfection."

We are too fond of turnips, and believe them too well adapted to our climate and soil, for us to subscribe to the opinion of Mr. Powell; especially when, as an evidence that thousands are more successful than he was, fine ruta baga are plentiful in our markets from 20 to 35 cents per bushel.

"Frequent attempts have been made by the American farmers to introduce the culture of the turnip in different parts of the United States. These attempts have generally been unsuccessful, and the practice has for the most part been abandoned.

"John Hare Powell tried the experiment for a number of years. From his acquaintance with the European mode of management, he says 'he has had quite as good crops as most American farmers, but that they had generally disappointed his expectations:' and he is of the opinion, 'that in no section of the United States, where Indian corn is a certain crop, should they be cultivated but for particular objects.'"

We have read with pleasure Mr. W.'s useful address, particularly that part where sentiments similar to the following are expressed:

"Every citizen of the United States is directly interested in elevating the character of the American farmer, and rendering the business of agriculture one of the most honorable occupations in life."

The Farmer's Magazine, conducted by the Editor of the Mark Lane Express. London.

This is a cheap quarto publication, issued in eight weekly pages, and stitched and covered in monthly numbers.

Our readers may form some idea of the importance given to *agricultural news*, when we inform them that full one-fourth of this paper is devoted to the state of the markets, and reports of the forwardness or backwardness of farming operations, the condition of the soil when receiving the seed, and the prospects of scarcity or abundance of crops. These topics naturally lead to many others—the peculiar methods of farm management pursued in the different counties, the kinds of implements used, the breeds of domestic animals found there most serviceable, and numerous other similar subjects. This kind of information is not sufficiently valued in this country; but, in proportion as intelligence, internal improvements, and facilities in agricultural operations, are increased, every species of news relating to husbandry will be sought with greater avidity.

About one-eighth of this farmer's paper is occupied with law reports, of cases relating to rural affairs. This strikes us an anomaly in agricultural periodicals, and one not worthy of imitation to the extent pursued in the work before us.

Having just finished reading the greater part of the Magazine for the years 1832 and 1833, we shall now lay before our readers abridged notices and extracts that we deem of interest to our readers.

The WELSH PONY is one of the most beautiful little animals that can be imagined. He has a small head, high withers, deep, yet round, barrel, short joints, flat legs, and good round feet. He will live on any fare, and can never be tired out.

CURIOUS FACTS IN VEGETATION.—*Why is it improper to consider the turnip a real bulb?*

Because it has an intermediate stem which swells into a bulbous form. Turnips have not been cultivated in England, in fields, more than a century; but this agricultural practice now yields an annual return which probably exceeds the interest of our national debt.

Why are the stems of the cabbage tribe considered wholesome food?

Because the acrid flavor is dispersed among an abundance of mucilage. Cabbages were commonly used among the ancients, and Cato wrote volumes on their nature. The Indians had so much veneration for them, that they swore by cabbages, and were therein as superstitious as the Egyptians, who gave divine honors to leeks and onions, for the great benefits which they said they received from them.

Lemery on Food. Why do cabbages emit a strong animated odor?

Because they contain a great quantity of azote or nitrogen, one of the ultimate elements of animal matter, and strongly characterized in the destructive distillation of horns, hoofs, or bones.

Why do not the leaves of the cabbage remain wet, after being immersed in water, and again taken out of it?

Because they are powdered with a slight layer of resinous matter, similar to that which covers certain fruits, and in particular, plums and grapes. Their sea-green color is also attributed to this resinous layer.

Why do the leaves of some trees fall very early?

Because they are articulated to the branch: that is, they do not unite with it by the whole of their base, but are simply fixed to it by a kind of contraction or articulation, as in the maple or horse chesnut.

Why do leaves fall at the approach of winter?

Because a separation takes place, either in the foot-stalk, or more usually at its base, and the dying part quits the vigorous one, which is promoted by the weight of the leaf itself, or the action of the gales that blow in autumn on its expanded form. M. Richard explains the cause more philosophically: "Although the fall of the leaves generally takes place at the approach of winter, cold is not to be considered as the principal cause of this phenomenon. It is much more natural to attribute it to the cessation of vegetation, and the want of nourishment which the leaves experience at that season, when the course of the sap is interrupted. The vessels of the leaf contract, dry up, and soon after that organ is detached from the twig on which it had been developed."

WHEAT.—The red lammas wheat, red straw, or red ear, is reckoned by many farmers the best of all the sorts hitherto known, yielding the finest and whitest flour.

Velvet wheat yields also much white flour, is thin skinned, less subject to mildew and blight than other wheat, as the downy hull appears to protect it. It is grown much in the Isle of Thanet, on the sea-coast.

USE OF THE BRAMBLE.—This shrub, which we are in the habit of despising, and which is only used by the chance passenger, occasionally plucking its fruit, possesses, however, several advantages which deserve our attention. Its roots, when dried in the shade, cut into small fragments, and taken in the shape of a weak infusion, form one of the best specifics against obstinate coughs. Its long branches can in cases of need be used as cords, and its fruit produces an excellent wine, the mode of making which is as follows: "Five measures of the ripe fruit, with one of honey, and six of wine, are taken and boiled, the froth is skimmed off, the fire removed, and the mixture being passed through a linen cloth, is left to ferment. It is then boiled anew, and allowed to ferment in a suitable cask. In Provence, bramble-berries are used to give a deep color to particular wines"—[From the German.]

CATTLE IN ENGLAND.—Our readers have an example in the following extract, of the great increase that is given to human sustenance by improvements in live stock:

A century ago, our cattle, from the inferiority of their food, were not one-half, sometimes even not one-third, of the present weight. It is computed that England and Wales now contain, at least, five millions of oxen, and a million and a half of horses, of which about a million are used in husbandry, 200,000 for pleasure, and 300,000 are colts and breeding mares. The number of sheep is about twenty millions, and eight million lambs. The number of long-wooled sheep is about five millions, their fleeces averaging 7 to 8 lbs.; and of short-wooled sheep fifteen millions, the weight of fleece averaging from 3 to 3½ lbs. The whole quantity annually shorn in England is from eighty to eighty-five millions of pounds. The Merinos were introduced about the beginning of the present century, and were imported in large numbers after our alliance with Spain in 1809. The great pasturage counties are Leicester, Northampton, Lincoln, and Somerset; and for butter and cheese, Cheshire, Gloucestershire, and Wiltshire. The import of butter and cheese from foreign countries is checked by duties, but these are important articles of Irish commerce with England.

AGRICULTURAL HYMN.—Although it is now winter, and the bounties of Mother Earth are for a season bestowed more scantily, yet all those whose tables are well supplied, and whose fire-side is comfortable, cannot refrain from uniting in the following hymn.

Great God of *Eden!* 'Twas thy hand
That first clad earth in bloom,
And shed upon a smiling land
Nature's first rich perfume.
Fresh from thy glance the flowers sprang,
Kiss'd by the sun's first rays—
While plain, and hill, and valley, rang
With life, and joy, and praise.

God of the *Clouds!* Thy hand can ope
The fountains of the sky,
And on th' expectant thirsty crop
Pour down the rich supply.
The farmer, when the seed-time's o'er,
Joys in the mercies given;
Thinks on thy promis'd harvest's store.
And, smiling, looks to heaven.

God of the *Sheaf!* To thee alone
Are due our thanks and praise—
When harvest's grateful labor's done,
On plenty glad we gaze.
Then shall our hearts on Heaven rest,
Thy grace we will adore,
And thank that God whose mercies blest
Our basket and our store.

True friendship and love are so grateful to the feelings, that we present a few more verses.

SWEET LAVENDER.

By Miss Agnes Strickland.

Sweet Lavender! I love thy flower
Of meek and modest blue,
Which meets the morn and evening hour,
The storm, the sunshine, and the shower,
And changeth not its hue.

In cottage maid's parterre thou'rt seen,
In simple touching grace;
And in the garden of the queen,
'Midst costly plants and blossoms sheen,
Thou also hast a place.

The rose, with bright and peerless bloom;
Attracteth many eyes;
But while her glories and perfume
Expire before brief summer's doom,
Thy fragrance never dies!

Thou art not life the fickle train
Our adverse fates estrange,
Who in the day of grief and pain
Are found deceitful, light, and vain,—
For thou dost never change.

But thou art emblem of the friend,
Who, whatsoe'er our lot,
The balm of faithful love will lend
And true and constant to the end,
May die,—but alters not.

THE TURNIP FLY.—In an address before the Northamptonshire Farming and Grazing Society, we find it recommended to collect small heaps of rubbish around the turnip-patch, and in two or three days after sowing, to set one or more of them on fire, first having sprinkled some sulphur on them. The wind will carry the smoke over the patch, and either kill or drive away the turnip fly.

CLIMATE ON THE EAST AND WEST SIDE OF LONDON.—It is rather unexpected that, although London is only eight miles long from east to west, and from three to four from north to south, vegetation should be ten days earlier on the west than on the east side. The thermometer in summer sometimes rises to 80, and rarely

to 85 degrees of Fahrenheit, and in winter falls to 15, and seldom to 20.

THE WATER CRESS GIRL.—We meet with more lines of poetry—must give them, although out of season.

She leaves her bed while yet the dew
Is sparkling on the flower;
And ere Aurora's golden hue
Hath ting'd the old church tower—
Ere yet the matin bell hath toll'd,
Ere yet the flock hath left his fold,
Or the blithe lark his bower—
Before the shadowy mountain mist
By the first sun-beam hath been kiss'd.

Her way is o'er the dewy meads,
And by the violet dell,
To where a plank her footstep leads,
By the old haunted well;
And then she steps from stone to stone,
In the brook's gurgling waters thrown,
To where the cresses dwell;
And many a lily decks the scene,
Of which she looks the fairy-queen!

Ah, little need she blush to see
The wave give back her face!
And her dark tresses wand'ring free
In all their native grace.
No worm hath marr'd her cheek's young bloom,
No mark of care's depressing gloom
Upon her brow hath place;
For love—false love, hath never yet
His seal upon her young heart set.

FLESH COLORED CLOVER—TRIFOLIUM INCARNATUM.—This grass, as an object of field culture, was, within a few years, brought to the notice of the British public by two English tourists reporting what they had seen in Germany. Two acres, sown on stiff red clay in the middle of April. "The spring was exceedingly dry, and yet it was fit for cutting in six weeks after it had been sown, and a most luxuriant crop it was."

M. Dombarle states in the Annales Agricoles de Reviere, that he has had five years' experience in cultivating it, and considers it of the highest value. It is an annual, and gives only one cut, yet this one is equal to two of red clover. It is not fastidious as to soil—stands the winters of the North of France, and is usually sown in August and September. "The quantity of seed is about twenty-five ounces per acre." The British code of agriculture states, that "it produces two excellent crops in one year, the first of which should be cut as soon as it comes into flower, and the second will produce a considerable quantity of seed. From a communication in the New-England Farmer, of Dec. 4, 1833, by the Honorable John Lowell, we make the following extract. Speaking of seed presented to the Mass. Horticultural Society, by the Honorable Thomas H. Perkins, he says,

"I sowed it about the last week of April. It was in bloom and fit to cut in fifty days. It is not so coarse as Dutch red clover, better furnished with leaves, not liable to lodge or lose its leaves in drying. It furnished a fair second crop in the late uncommon dry season.

"From its rapid growth I think it of great value for an early crop, for soiling in summer, or for supplying food when other grasses are winter killed.

"It is only an annual grass, and therefore can be of no use but for these occasional purposes; but for milk farms to supply the market, or for small dairies on estates round great towns, I think it promises to be highly useful. I have requested my friend Mr. Perkins to import fifty pounds, for myself and a friend, and he has ordered a quantity for himself, which are now on their passage. We shall be able to make a more extensive trial next summer, the result of which will be made known."

The seed may be had of H. Huxley & Co. No. 81 Barclay street, New-York; and of W. R. Prince, Flushing, New-York. One of the writers remarks that care should be had to obtain good seed, and not to sow it too deep.

EFFECTS OF LITIGATION.—The following may serve to illustrate the general results of law suits—of most of the disputes and angry feelings that mar the happiness of society:

"A century ago, there resided in Iniskea, two persons, who were remarkable for superior opulence, and had become the envy and wonder of their poorer neighbors. Their wealth consisted of a flock of sheep, when, unfortunately, some trifling dispute occurring between them, a dissolution of partnership was resolved upon. To divide the flock, one would suppose was not difficult, and they proceeded to partition the flock accordingly. They possessed one hundred and one sheep; fifty fell to each proprietor, but the odd one—how was it to be disposed of? Neither would part with his moiety to the other, and after a long and angry negotiation, the sheep was left in common property between them. Although the season had not come round when sheep are usually shorn, one of the proprietors, requiring wool for a pair of stockings, proposed that the fleece should be taken off. This was resisted by his co-partner, and the point was finally settled by shearing one side of the animal. Only a few days after, the sheep was found dead in a ditch—one party ascribed the accident to the cold feelings of the animal having urged him to seek a shelter in the fatal trench; while the other contended, that the wool remaining upon one side had caused the wether to lose his equilibrium, and that thus the melancholy catastrophe was occasioned. The parties went to law directly, and the expenses of the suit actually devoured the produce of the entire stock, and reduced both to a state of utter beggary. Their descendants are pointed out to this day, as being the poorest of the community, and litigants are frequently warned to avoid the fate of '*Mailey and Malone.*'"—[Wild Sports of the West.]

DRAFTING SHEEP.—Good management of sheep and lambs requires several drafts.

"The next drafting takes place among the fat sheep in Spring which had been fed on turnips. If they are to be sold on the ground to a dealer, a few of the worst should be drafted, and sold separately, otherwise they will assuredly be made the occasion of lowering the price of the rest; and if they are destined for a public weekly market, more care is necessary for the proper assortment of them. They will have to be put into lots of half a score, or a score, according to their strength or number, and each lot marked by a distinct mark on the wool with red or blue paint."

FOOD FOR HORSES.—We often hear such and such food recommended, because it contains much nutritive property, chemically ascertained, without any regard to the bulk, or its adaptation to the digestive powers of the animal. One reason why oats are so much esteemed as food for horses is, that they have more bulk than most other grains. We make an extract from Mr. Dick's opinion.

"Under this view of the subject, it will be seen that a moderate proportion of nutritious food is only required, and that it is advisable to present it in as small a compass as will suit the nature of the digestive organs. But it would appear that a certain proportion of bulk is also necessary to the quantity of nutritious matter to keep up the proper action of the bowels. If the food is too rich and too much concentrated, it deranges the stomach and bowels, and produces disease; if too poor and bulky, it yields not the proper degree of support to the animal, while its bulk impedes respiration, and its weight detracts by its burdensomeness from the capability of the animal exerting himself. From these remarks, it will appear obvious that the grand desideratum is to give food containing as much nutriment, and in as small bulk, as is consistent with the economy of the animal."

TURNIPS TO THE ACRE.—Loudon, in his late tour of Scotland, says, the cultivation of turnips in rows is carried to so high a degree of perfection in Scotland, that 30 tons of Swedish turnips are calculated on to the statute acre.

CIDER A PREVENTION OF CHOLERA.—In Herefordshire, noted for its fine apples and cider, there was little or no cholera. In Devonshire, nearly as much distinguished for its cider and apples, the cholera made havoc. In the latter county the cider is generally boiled, and in copper vessels, the corrosion of which has been the cause of the "Devonshire cholic," a disease not unlike the cholera. The malic acid is supposed to be good against the cholera, but acetous acid or sour cider predisposes to this disease.

CULTIVATION IN THE UNITED KINGDOM.—The following statement will be found interesting, as exhibiting the number of acres in cultivation in the United Kingdom, and the different purposes specified, for which they are employed in England and Wales, as well as the number of farms, and the annual amount of property derived from agriculture:

		Uncultivated Wastes.		
	Cultivated Acres.	Capable of Improvement.	Barren and unprofitable.	Total.
England,	25,632,000	3,454,000	3,956,400	32,342,400
Wales,	3,117,000	530,000	1,105,000	4,732,000
Scotland,	5,265,000	5,950,000	8,523,930	19,738,930
Ireland,	12,525,280	4,500,000	2,416,664	19,441,944
British Isles,	383,690	166,000	569,469	1,119,159
Total,	46,922,970	14,600,000	15,871,463	77,374,433

In England and Wales it is calculated that there are 3,250,000 acres employed in the cultivation of wheat; 1,250,0000 acres in that of barley and rye; 3,200,000 acres in that of oats, beans, peas; 1,200,000 acres in that of clover, rye grass, &c.; 1,200,000 acres in that of roots and cabbages, cultivated by the plough; 2,100,000 acres in that of fallows; 47,000 acres in that of hop grounds; 18,000 acres in that of pleasure grounds; 17,300,000 acres in that of depastured by cattle; 1,200,000 acres in that of hedge-rows, copses, and woods; 1,300,000 acres in that of ways and water courses, &c.; 5,029,000 acres in that of common and waste lands. Total of England and Wales, 37,094,000 acres.

SALT.—Fine particles of salt soften the most stubborn soils, and enable the farmer to till them in the dryest weather.

THRASHING.—In some of the parishes of England, flails are substituted for machines—supposing them, all things considered, cheaper.

THE POOR LAWS.—The Quarterly Journal of Agriculture states that the poor laws have nearly ruined the moral character of the lower orders, by encouraging improvidence, and making them reckless of their fame; and in many cases even dissolve the sacred bonds of affection. The whole country is burdened with a tax to produce and sustain this unhappy state of things.

BEET ROOT SUGAR.—The decrees of Bonaparte brought a hundred thousand acres yearly under cultivation of beets for sugar. A great oversight of the French government was to compel every farmer to devote a portion of his land to this root, without fixing some obligation on the manufacturers to pay a remunerating price. The consequence was, that the farmers were wholly at the mercy of the manufacturers.

"To the manufacturer, we are told, the pro-

fit was ample; an equal quantity of sugar with that of the West Indies—which at that time sold for *five shillings* a pound, could be produced on the spot from mangel wurtzel at *less than one shilling* per pound! and to such perfection had the sugar thus made arrived, that the prefect, mayor, and some of the chief persons of Bruges, who were invited by a manufacturer to witness the result of his experiments, allowed the specimens which he produced to *exceed* those of the *foreign sugar!*

"The British people are really of opinion that Napoleon's novel project *entirely failed*, and that our continental friends are still indebted to their colonies for the immense supplies of sugar they annually consume. They will be surprized to know, that not only does the manufacturer continue to thrive, but that the produce is abundantly ample to satisfy all the wants of the people, *independently of any supplies from abroad*, and that the French Minister of Commerce has deemed the time to have arrived, when beet-root sugars shall be made subservient to the fiscal necessities of the State.

"In 1828, it seems, 58 establishments for the manufacture of sugar in France were known to be in activity, and 50 more in process of construction; and it was these ascertained facts that induced the Government to reflect 'whether the time had not come for making the domestic sugars bear a part of the burden before laid exclusively upon the exotic ones.'

"In the inquiry that was instituted in 1828, when it was attempted to remove the difficulties which attended the fixing a tariff on sugars, it was stated, that 'if the tariff is not changed, and no extraordinary event happens, *five years* will be enough to enable the beet-root establishments to produce enough *for the whole consumption of France!* and in *ten years* to *compete with the colonies on equal terms!* or rather the colonies will not be able to contend with them; for the killogramme of domestic sugar can then be afforded at 60 cents, *i. e.* the price which the sugar from the cane necessarily costs in the colony itself, and to which must be added freight, insurance, and commission.

"The manufacture of sugar from the beet-root is concentrated principally in the three departments of le Nord, la Somme, and le Pas-de-Calais, where the land is well fitted for the kind of culture which it requires. The *worst* produces 12,000 kil.* of beets per acre, (query *hectare*, 2 a. 1 r. 30 p.); the *best*, 60,000! There are some establishments in other departments, even in the South, but they are not in the way of increase, since the beets are in general in that part of France watery and barren of sugar.

"As an useful auxiliary to agriculture, this branch of manufacture is justly extolled for the excellent means which it offers for improving the soil; bringing it from the fallow, unproductive state; and (in the opinion of a distinguished French agriculturist) as being about to produce, in the national economy, one of those happy revolutions whose importance is not always felt at the time, but which posterity will note as the cause of the greatest commercial and agricultural prosperity."

NEW-ZEALAND FLAX, *Phormium Tanex.*—This plant stands the winter of England. In 1828 only 60 tons, valued at 2,600 pounds sterling, were imported from Sydney into Great Britain. In 1830 there were 841 tons, and in 1831 1,062 tons. Its price in London is 15 to £25 per ton. The flax is prepared by the natives, and in strength and whiteness of fibre is superior to any analogous material.

FROST BITTEN.—When the hands, feet, or face, have been exposed to severe cold, and then brought suddenly before a fire, violent inflammation, and often gangrene, will take place. If this take place, poultices and fomentations must be applied; for mortification, a fermenting poultice must be used. But when the disease runs so far as this, a medical practitioner should be consulted. When the inflammation goes away and leaves ulcers, they must be treated as chilblains.

When any part of the body becomes frost-bitten, let it be put into water very little warmer than the atmosphere which occasioned the disease, or let it be rubbed with snow until the morbid appearances are removed.

INJUNCTION—PLOUGHS.—The following may serve as a specimen of the law reports contained in the magazine:

RANSOME AND OTHERS, *v.* SANDERS AND WILLIAMS.—This case was brought up by Mr. Richards, as counsel for the plaintiffs, who are plough manufacturers at Ipswich, and defendants are ironmongers at Bedford. Counsel stated that the prayer of the plaintiffs' bill was, that defendants be perpetually restrained by injunction from making, or causing to be made, any plough bodies, or sets of metal, or any of the parts thereof, marked with the words, "Ransome," or "Ransome and Sons," and with the letters "N. N.," or with any such words or signs which purport or pretend to represent that they are made by the said plaintiffs, and also from, in any manner whatever, imitating or counterfeiting upon plough bodies and sets of metal, or any part thereof made by them the said defendants, the said words and letters, or any word or sign used by the plaintiffs, upon plough bodies and sets of metal made by the said plaintiffs; and that they, the said defendants, be perpetually restrained from parting with, out of their possession, all plough bodies and sets of metal, and every part thereof, made by the said defendants, which have the said words and letters, or any word or sign marked thereon, which purport or pretend to represent that they are made by the said plaintiffs, except to plaintiffs.

It appeared by the defendants' answer, that they admitted the fraud practised on the public by them was that of using plaintiffs' names and private marks, and therefore consented that a decree pass against them according to the prayer of the plaintiffs' bill, and to pay all plaintiffs' costs, and surrender to plaintiffs the profits made by the illegal practice.

SUBSTITUTION OF INANIMATE FOR ANIMATE POWER.—This is an important subject, and will, in all human probability, effect much change in the value of horses. The Journal of Elementary Locomotion estimates, on the calculation that £216,817,624 is the value of the agricultural produce of Great Britain, the saving of upwards of 120 millions yearly, by the substitution of inanimate for animate power.

It is calculated that out of the 1,800,000 horses in the United Kingdom, that the horses used *bona fide* for husbandry amount to 852,863. To these we will add 88,512, being the half of the number estimated as *not wholly* used for the same purpose.

The annual keep of ditto at £29 14s. per head, amounts to - - - -	£24,097,837	10	0
Duty upon ditto - - -	725,433	5	0
Interest upon these items, at £5 per cent. - - -	1,241,163	0	1¾
Add the 14th part of £10,818,296 13s. 4d. the capital sunk in the above horses, at the average of £13 6s. 8d. each, for average loss of life annually - - - - -	772,730	9	6¼
Farriery and other incidental expenses, £1 pr head	811,385	0	0
Total,	£27,648,539	4	8

We might add to this also the horses kept by small farmers, calculated to amount to 38,010, the annual approximating expenditure upon which would make the grand total equal to £30,000,000; which sum, at the least, would be saved to the growers by the cheaper mode of agriculture which the substitution of inanimate for animate power will effect.

This, perhaps, is greatly undervalued. Mr. Dupin, founder of the Mechanic Institute of France, in a comparative estimate of the amount of animate and inanimate force, applied to agriculture, in France and Great Britain, states the latter as follows:

Human race, 5,000,000, equivalent to 2,132,446 effective laborers.

Horses of full growth 1,250,000, equivalent to 8,750,000.

Whilst an authority of the highest consideration at home makes the brute labor employed in our husbandry to be ten times more than the human. In either case, allowing that a horse will do the work of six men, the suppression of brute force will, upon an approximating calculation, save nearly two-thirds of the annual expense of raising the food of the country.

The Farmer's Register. Edmund Ruffin, Editor and Proprietor. Richmond, 1833.

This is a monthly periodical of sixty-four closely printed large octavo pages, at five dollars per annum—principally devoted to southern agriculture, but more especially to that of Virginia.

The relative wealth and influence of the 'old dominion' have not been sustained, owing to the improvements in agriculture in the more Eastern States, to the virgin fertility of the Western, and to the internal improvements and prosperity of manufactures in all these States. Besides these causes of comparative decline, there has been an actual diminution of resources, arising principally from an exhausting system of cultivating the soil. We could scarcely believe that a section of our country so distinguished for intelligent and eminent men, could have pursued a course of cropping so wretched—founded on no higher philosophy than that it was the custom of forefathers. Field after field was cleared and kept under the plough without a single ameliorating crop, until from three to ten bushels of wheat were considered, on many estates, a crop equal to expectation. The exhausted condition of the soil compelled thousands to bid farewell to their native fields and vales, and seek those in the far West that were under the culture of nature. Thus farm after farm was left to be overgrown with weeds, and to serve as monuments of a deficiency in agricultural science. In this state of general depression of landed property, Mr. Ruffin steps forth and calls the attention of Virginians to calcareous manures. This is succeeded by the publication of his Farmers' Register—the old dominion begins to awake—innumerable localities and inexhaustible quantities of marl are discovered east of the mountains—and now thousands are on the march of improvement. This ancient and renowned State is destined once more to rise in its strength and vigor. If Mr. R. continues to persevere and prosper, he will, in less than twenty years, be acknowledged as one of Virginia's greatest benefactors.

We shall proceed to make a few abridged notices and extracts, that will give our readers an idea of the work.

CLOVER AND THE FOUR-SHIFT SYSTEM.—The following may serve as one of the many excellent examples that the Register is bringing to the light of open day.

* The killogramme is 2 lbs. 3 oz. 5 drachms and 38 grains over. It is usual in speaking of 100 killogrammes, to estimate them at 222 lbs.: or, in reference to approximate numbers, to consider the 100 killogrames as 2 cwt. English.

In the year 1816, Mr. James M. Selden ook charge of Woods' farm, of 250 acres of rable land, the remaining 300 acres being all amp land, subject to the inundation of the des. Previous to his taking charge of the tate, it had been managed by overseers for a reat number of years, under this disastrous ystem of three fields. To those who are acuainted with the character of the soil in the eck, it would be superfluous to say much. I hall therefore only state, that it possesses all he qualities of our best loam lands, only perhaps to a greater degree than any other within ny knowledge: and probably would bear this arsh and bad treatment to a greater extent han most other soils. Under this three-field otation, the crops on this estate were never ore than 3 or 400 bushels of wheat, and om 100 to 120 barrels of corn. He at once aw that to persevere in this system of cultivation was to work for nothing, and finally to be left in utter poverty, so he resolved on change to the four-field and fallow system. The crops, after the adoption of this change, were in every rotation increased to double, and n a very few years to five or six times the uantity.

THE WEEVIL.—There is a long communication in the November number on this subject. The preventive found most successful was to hrash the wheat early, and to spread it where may not heat so much as to hatch the insect.

ORNAMENTAL TREES.—Of this class, deciduous trees are preferable to evergreens—because hey preserve our dwellings from the solar heat n summer, but admit it in winter, when it adds o our comfort. The variety caused by the hange of the seasons in the foliage of trees, rom the first budding to the fall of the brown nd golden leaves of autumn, also serves to elieve the mind from the dull uniformity of he cone-bearing and resinous ever-greens.

TREATMENT OF YOUNG TURKEYS.—The principal remedy necessary in the first instance ppears to be a stimulant, to counteract the extreme feebleness which attends young turkeys, nore than other fowls, in the earliest stages of heir existence: hence, a grain of pepper, &c. s usually administered as soon as hatched. But instinct, their infallible guide, it appears, as more successfully directed them to the wild onion, which is proved to be a powerful restorative to their natures, and in fact, a grand panacea to the race. When they are permitted o ramble, you will see them busily cropping the green blades of the onion, with much apparent enjoyment.

Small homony made wet, with the addition of a portion of the wild onion chopped fine, or any other onion tops that can be procured, affords the best and most wholesome food they can have for several weeks at least, or so long as they are confined to small enclosures.

Last spring, I witnessed with astonishment the wonderful efficacy of this article of food on a large flock of turkeys, which had been daily and rapidly diminishing during the long rainy season in May. The mortality ceased the first day after their change of food to the above mixture of homony and onions; and in two or three days, their rapid growth and improvement was visible to every eye.

Turkeys are very fond of green food of any kind, particularly lettuce and cabbage, and by the time they have grown off pretty well on the onions, there is plenty of that sort of provision. Cabbage leaves, chopped and prepared in the following manner, may then be given them twice a day with good effect, morning and evening.

After the leaves are chopped, put them in tubs of water, to remain all night, and early in the morning spread the meal on boards before them: in the same way, prepare that for the evening, by times in the morning. Continue also to feed them on homony, so long as they may require your care, and I venture to say that the good housewife, without uncommon accidents, will have no reasno to complain of the want of a good dish, whilst turkey is in season.

With my best wishes for the prosperity of your valuable exertions in behalf of the general welfare, I remain yours, respectfully,

HASSINA.

TO SAVE THE SHOULDERS OF HORSES FROM BEING CHAFED BY THE COLLAR.—Some of the gentlemen of South Carolina are in the habit of making long journeys by land in their own conveyances, and are obliged to resort to every method of affording relief to their horses. From one of these I derived the following simple expedient for preventing the shoulders of harness horses from being chafed by the collar. The shrewd practical sense of the gentleman referred to is a strong guarantee of the value of his suggestions. A short trial of my own has fully convinced me of the utility of what is *classically* denominated the sweater. This simple and effectual contrivance is made of two pieces of leather, which, for an ordinary horse, may be about 5½ inches wide at the top, 6 at the bottom, and 9 at the greatest protuberance, the front edge being straight, the posterior curved with a gradual swell adapted to the shape of the collar behind. These pieces must be sewed together at the bottom, and connected at top by two small straps and buckles, so as to be let out or taken up at will. The lower part must be so shaped as to fit the throat of the horse. A strap passes from the bottom of the sweater between the legs to the girth, by means of which it is kept in place. The strap should not be too tight, lest it might incline a balking horse to stop, when ascending a hill; and the buckle at the end near the girth, if it chafe, may be covered. The leather should be tolerably stout upper, rendered pliant by the occasional application of tallow to the outside. The inner side should be kept clean and smooth.

The sweater is in fact a sheath for the shoulders, and the collar rests on it instead of the skin of the animal. H.

Waynesborough, Va. Oct. 4th, 1833.

PREPARATION OF SEED WHEAT.—When I am about to commence seeding, I have two barrels prepared, one of which I have filled about two-thirds full with brine, strong enough to bear an egg, into which I have the seed poured very slowly, until the brine rises nearly to the top, which will be covered with the light grains of wheat, cheat and garlic, which are skimmed off with the hands, and the wheat at the bottom stirred once or twice to free it from any remaining impurities, which are again skimmed off. An old basket without a handle is then placed on the top of the empty barrel, through which the brine is poured from the wheat by two men taking the full barrel by its bottom on opposite sides. The wheat is then emptied into a large box, and the same process repeated from one barrel to the other alternately, until a sufficient quantity is washed for the day's seeding, and as much gypsum is then stirred into the whole mass as will adhere to the grain. Water is added occasionally, and a sufficiency of salt to maintain the strength of the brine, which is tested by an egg kept at hand for the purpose. The whole process is completed in the morning, by the time the teams are ready to proceed to their work. I suppose a bushel of salt would probably suffice for one hundred bushels of seed, which would, by reason of its invigorating qualities, be very well bestowed in that way, independently of its aid in freeing the wheat from its impurities.

F. H.

N. B. If the wheat is infected with smut, it will be effectually destroyed, by stirring in a portion of quick-lime before the gypsum.

BUCKWHEAT.—In a translation of an article from Rozier's Cours Complet, we make the following extract:

Besides the common buckwheat of which we have spoken, there is a species considered preferable, which is known by the name of buckwheat of *Tartary*, or of *Siberia*, and which was in 1782 much extolled by M. Martin. This variety, which has been brought from Siberia by a missionary of Low Maine, is especially suitable to the north of France: it is more hardy than the common kind; it is less inclined to lodge, and produces more. The grain is smaller, the stalk more yellow, and more solid. According to M. Curant, who calls this grain *Martin-Corn*, (in honor of M. Martin, of whom we have spoken,) the Siberian buckwheat fears neither hot winds nor white frosts; it gives for one seed sown, nearly two thousand in rich soils—and elsewhere, from fifty to three hundred and more; it makes a better meal, and can be kept as well and as long as that from wheat. These incontestible advantages are accompanied by some inconveniences: in the first place, the Siberian buckwheat shatters in reaping still more easily than the common, and consequently demands an increase of precautions; then it grinds almost as slowly as rye, and it ought not to be sowed until July, a time when the hay harvest draws so heavily on the labor of the farmer.

MAGNESIAN MARL.—Among the numerous beds of Marl, a correspondent of the Register gives an account of one which Mr. Ruffin found to contain 50 per cent. of carbonate of lime, and 31 of carbonate of magnesia. Magnesia in lime is considered by many as injurious to vegetation. Mr. R. has collected much, both *pro* and *con*. When used in moderate quantities, the testimony appears to be in its favor. On richer soils it will be used in greater quantities. Sir H. Davy explains this on the fact that magnesia has much less affinity for carbonic acid than lime has; and, consequently, as long as any caustic lime remains, the magnesia will not combine with carbonic acid, and thus remain, caustic, and poisonous or hurtful to plants. For a rich soil more carbonic acid gas is disengaged, and unites with it.

EASY METHOD OF SOWING GRASS SEEDS.—I had a piece of sheet iron about four feet long and twenty inches wide, punched with small holes at distances of about half an inch or three quarters each way, and then made into a cylinder similar to a stove pipe. An axle passes through the cylinder, on each end of which is attached a wooden wheel of double the diameter of the cylinder, and on each end of the axletree are fixed the handles or frame, by which the machine can either be pulled after, or rolled before the seedsman, as he may prefer. A cylinder four feet long and six inches diameter will hold rather more than a half bushel of seed, and will sow about a bushel to the acre.* Here let me observe that the seed should be very nicely sifted—for if there be much filth or chaff left in the seed, they will not be sowed thick enough. The seed may be put into the cylinder either by taking off one wheel or by having a door cut in the cylinder, after the manner of the barrel churn.

Since using this grass sower, (if I may so call it,) I find the grass is sowed more regularly—that much time and labor is saved, and it is almost impossible for the wind to affect the seed at all, since they are nearly touching the ground by the time they are out of the box.

* The holes should be about the size of those commonly punched in tin for safes.

The City Hall Reporter, and New-York Law Magazine. Edited and published by JOHN LOMAS.

To the members of the bar the title of this work implies all we could say to excite a curiosity to read its contents. The general reader, who has a taste for that mental and *moral* science which so accurately investigates our relative duties and obligations, who is delighted with the display of talent and profound learn-

PRINT IN BINDING

ing, and who is deeply interested in the biography of stars of the first magnitude, will find in the pages of the Reporter much to amuse, engross, and instruct him. We trust that we shall occasionally find in its pages something quite appropriate to our columns.

NEW-YORK FARMER.

NEW-YORK, JANUARY 1, 1834.

AGRICULTURAL SCHOOL—EXPERIMENTAL FARM.—On this subject we deem it not necessary to multiply words, so general is the assent given to the importance of immediate legislative aid for a school and farm. We refer to our "Reasons," page 1, and to the following opinion of Sir John Sinclair:

"The art of agriculture," says Sir John, "can never be brought to its highest degree of perfection, or established on rational and unerring principles, unless by means of experiments, accurately tried, and properly persevered in. The ardent inquirer has too long been obliged to rely on vague opinions, and assertions, which have not been warranted by sufficient authority; it is full time, therefore, by the establishment of experimental farms, under the sanction, and at the expense of government, or by enabling the Board of Agriculture, to grant adequate premiums to deserving persons, for new discoveries, to bring the art to as great perfection as possible, by ascertaining the principles on which it ought to be conducted."

OLDEST AGRICULTURAL SOCIETY IN THE U. STATES.—The South Carolina Agricultural Society was formed August 9th, 1785, and is supposed, says Mr. Whitaker, the oldest in the U. States. From the period of its formation to the present day, it has embraced a large number of the wealthiest and most intelligent planters of the State. We are inclined to think their efficiency has not equalled their wealth and intelligence.

THE SCIENCE OF AGRICULTURE.—Mr. Whitaker, in his address before the South Carolina Agricultural Society, thus speaks of this subject:

It is impossible that a Science, whose basis is so firmly fixed in nature, and which covers so wide a surface of social interests, should fail hereafter to awaken the attention, enlist the talents, and urge forward the enterprize of the most gifted intellects in the promotion of its great objects. It is impossible that a Science, of all Sciences the most useful and interesting to man in his present state—a Science which dates back its origin from the first dawn of civilization, of which, in fact, it has been everywhere the precursor—a Science which has converted savages into useful citizens, and caused even "the desert to rejoice and blossom as the rose"—a Science which has actually engaged the attention of seven-eighths of the members of the human family, from the earliest period down to the present day, either to its elementary principles or to their practical application—a Science, over whose interests even the heathens thought it necessary that a distinct and special Deity should preside—a Science, whose praises have been sung by poets and chaunted by orators, and in whose details kings have been willing to engage—a Science which constitutes the basis, the substratum, the main stock of many other sciences, which can be properly viewed only as shoots or branches from it—a Science which is the great, the inexhaustible source of wealth, happiness and refinement, both to nations and individuals, and whose triumphs are daily witnessed, and whose blessings are sensibly felt and appreciated, by every cultivated people in every habitable clime—a Science which feeds us and clothes us and cheers us—

> "Whose streams from ev'ry quarter confluent, form
> My better Nile, that nurses human life."

It is impossible, I affirm, that a Science so valuable in itself, so diversified in its relations, so controlling in its influence, so important in all its results, should not, in an enlightened age, and in a free country, excite a far greater degree of attention than it has hitherto awakened, and command a far higher proportion of respect than it has heretofore claimed. From a variety of causes, this Science has now become so intimately associated with the most thrilling and engrossing interest of life—a knowledge of it is so essential to improvements and prosperity in the manufacturing and mechanic arts—it enters so fundamentally into the prospects and success of every commercial enterprize—it contributes so largely to the amount of domestic peace and public happiness and national glory—it is so closely bound up and involved in the consideration of all great political questions, that as it already begins, as might be expected, so it will continue hereafter, to press itself upon the notice of intelligent men of all ranks and professions, in a tone so loud and clear that it will be heard, and in a language so impressive and intelligible that it must be understood.

RELATIVE CLAIMS OF AGRICULTURE.—Mr. Whitaker's views correspond so well with our own that we cannot refrain from giving another extract.

"But agriculture," says he, "contributes liberally to the constant demands, and not to the occasional wants of society—to the indispensable and never varying necessities of mankind at large, and not simply to the incidental and extraordinary calls of individuals. In this point of view, therefore, Agriculture prefers claims to a far higher consideration than either Law or Medicine. And if the question were put, which is best calculated to enlarge and liberalize the mind, the decision, I imagine, must again be in favor of Agriculture—of Agriculture, however, not degraded to a despicable rank, but raised to that high elevation where good sense and a just philosophy would place it. Even its humblest duties, I maintain, are performed under circumstances favorable to the development of a refined enthusiasm:

> '——— Ask the swain
> Who journeys homeward from a summer day's
> Long labor, why, forgetful of his toils,
> And due repose, he loiters to behold
> The sunshine—gleaming as through amber clouds
> O'er all the Western sky; full soon I ween,
> His rude expressions and untutored airs,
> Beyond the power of language, will unfold
> The form of beauty smiling at his heart.
> How lovely! how commanding!'"

EXCRETORY POWERS OF PLANTS.—In the Genesee Farmer of the 30th of November last, we find the following remarks on De Candolle's theory of the rotation of crops. See New-York Farmer, vol. vi., page 354.

The inference deduced above, and by Professor Lindley, that the exuded matter becomes a poison in the soil to a crop like that which gave it off, is manifestly incorrect; otherwise two crops of wheat or other grain would not grow in succession on the same field—a fact which is disproved by the experience of almost every farmer in Genesee. The utility of a rotation can be explained on a different and more rational principle—the exhaustion in ordinary soils of the particular food of a crop in a season. The great secondary formation of the west so abounds in the specific food of wheat, that a succession of these crops does not exhaust, though it must sensibly diminish it. In general, grounds will not bear two successive crops of wheat without great deterioration. Flax particularly exhausts the specific food adapted to its wants, and is not grown a second time on the same field, in Holland and the Netherlands, except at intervals of 8 or 10 years. B.

We would ask the respected writer of the above, why is it that one crop is a *preparation* for another, if it does exude nutritive matter for the succeeding one? Why does one kind of forest trees, when cut off, send up such a feeble offspring, notwithstanding there has been a constant accumulation of vegetable mould, that another of an entirely different kind supersedes it by a more vigorous growth? If matter is not excreted, why does not the application of manures render a rotation dispensable? M. Macaire clearly proved by experiment that the roots not only absorbed poisonous substances dissolved in water, but exuded these substances. What B. has stated in the above paragraph is no more in favor of his own theory than it is of De Candolle's—only proving, in respect to the Genesee country, that the portions of matter exuded, and of nutrition retained, by the crop, are, relatively to the richness of the soil, too small to effect the succeeding crop; or that the excreted substances undergo some chemical change in the soil that renders them neutral or positively nutritive. Why, "in Belgium and Holland, are *wheat* and *madder* preferred to all other crops as the *precursors of flax*?" Why, after a few other crops intervene, do they again obtain a good crop of flax *without manure*?

The physiology of plants appears to indicate the truth of this theory. By the combined agency of light and heat, the leaves perform their functions in elaborating the sap. In the night, owing to the want of sufficient light and heat, there is comparatively a cessation of the active operation of the leaves, and the rapid escape of moisture is mostly arrested; consequently, the spongeoles must be less active, if they do not entirely cease absorbing, and thus they are left to exude those substances that are foreign to the nature of the plant, and which we know are taken up by the roots. In the night, the growth of plants is not so great as in the day, and, consequently, is it not reasonable to suppose that nature embraces this opportunity to free the plant from a superabundance of any ingredient, and from uncongenial matter? If the leaves throw off, during the night, all excess of carbonic acid gas, why is it at all incredible that the roots should perform a similar office, especially when the elaborated sap descends to the extremity of the roots? This theory is analagous to the animal kingdom.

Again, we would ask B. what is the "specific food of wheat?" and how, and by whom, it was ascertained to exist abundantly in the Genesee country? We are not aware that a secondary formation has been discovered to contain more specific food for wheat than primitive or alluvial regions. In primitive countries they raise good wheat without any application of secondary substances; and, in alluvial tracts, it is well known that wheat succeeds well. Admitting that some soils do contain specific food, it does not militate against De Candolle's theory, until it can be shown that the roots take up no uncongenial substances, nor any excess of its specific food.

THE TIDE.—*Mr. Fleet:* It is said that the tide flows 75 feet in the Bay of Fundy, and along the north-east coast of America. Much surprize has been expressed on this subject; but I think if we consider a few circumstances, our surprize will cease. The Gulf stream

runs from the Capes Florida in a north-east direction, at the rate of from 3 to 6 miles per hour; this current evidently gives impulse to the tides about the Bay of Fundy and the Banks of Newfoundland, &c. Yours, &c.

RATIO.

Internal Improvements, No. II. By F. To the Editor of the American Railroad Journal, and Advocate of Internal Improvements.

SIR,—To reflecting minds it is a matter of astonishment how little influence the dissemination of knowledge on this all important topic of interest has exercised in tempering the judgment of speculators; how little effect it has produced in the correction of errors that ignorance alone can palliate; and how little regard it has excited in the present as a warning against the experience of the past. This infatuation, if so it may be termed, in its effects so prejudicial to the true interest of the cause, is mainly ascribable to the spirit of rivalry, but has of late prevailed to such an extent among advocates of different modes of inland communication, that, until this spirit be quenched, it is much to be feared that examples, however numerous and fatal their consequences may be, will continue to pass by unheeded: the same errors will be committed, and the same rewards attend the acts of the designing stock-jobber. For it is this misplaced excitement that has caused the minds of men to stray from the path of common sense, and by bias of either one favorite project or another, led them into speculations, and realized blunders and mistakes, which, for absurdity and extravagance, can scarce find a parallel. It is now time that the reign of ignorance should cease, and that intelligence under the guidance of sound judgment should assume the sceptre, to mark out the path and direct our exertions to the development of those riches which nature has so prolifically bestowed on us.

The beneficial effects resulting from a well organized system of internal communications are now generally acknowledged by all classes, and it is therefore only necessary in this place to lay before you an investigation of the different means resorted to for producing those effects; and to point out, in as brief a manner as the nature of the subject will admit, their particular adaptation to the several cases in which they may be applied successfully for that purpose.

It was not until the time of the ancient Romans, that any material improvement was effected in the primitive means of intercourse between distant places. It was then, when extensive military operations demanded additional facilities for the transportation of armies with their necessary accoutrements, that the works known under the name of *Viæ Romanæ* were first introduced. These works are universally characterized by marks of grandeur, permanency and utility, that every succeeding age has admired, and which the havoc of time, during an interval of exceeding two thousand years, has scarce been able to efface. It may not be deemed irrelevant to our subject to occupy a few moments in noticing the *modus operandi* pursued in the construction of these noble monuments of antiquity; which, while serving as a parallel to judge that now adopted by modern nations, may, at the same time, act as a guide to their future improvement. As to durability, we cannot hope to dispute the palm: and our claim to excellence, if any we have, must rest upon improved principles as modified by economy in construction. It must be remembered that the Romans were a warlike nation, despised commerce, and placed their whole reliance for maintenance in their scabbards; and in constructing works of this character, their advantages in a military point of view were alone regarded. If these could be made manifest, no obstacles of a fiscal nature could for a moment militate against their expectation. Men and means were forthwith provided, and the work was soon in a rapid state of progression. But the revolution that has since taken place, in the organization of civil society, renders the construction of similar works in one day next to impossible; and although we may no longer hope to see the spirit of former times emulated in the present, by the erection of monuments to ennoble our country and to record its genius, we may hand down to posterity such memorials and devices of the present age as the love of gain may suggest for the furtherance of individual interest.

But to return to our subject. These ways were commenced by making a deep excavation of the necessary width. Either side of this excavation was then protected by walls erected for the purpose, and crowned with parapets, to give solidity to the way, and to serve at the same time as an elevation for the convenience of those who travelled on foot. The space between the walls was then filled with layers of different materials, cemented together by a mortar made of the volcanic produce called puzzalano. Above these materials, thus formed into a solid bed, they placed the hardest stones that could be procured, constructing their salient angles so as to form a large mass, and cementing them together as before. At certain intervals they placed stones of a greater height than the parapets for the convenience of horsemen. The ways were then ornamented with temples, monuments, and shrubbery; and the distances marked on columns of stone. Some idea may be formed of the time and labor bestowed on these works, when it is remarked that, in the construction of the Appian way, the hardest quality of stone was used that could be procured, which were smoothed and squared under the hands of the most skilful workmen, and joined together so nicely that the lines could scarcely be traced, and the appearance for miles was that of a single unbroken slab.

It is not contemplated in this place to trace the history of road making through its different gradations down to the present time; indeed, such a narration, independent of its want of interest, would be but a record of blunders founded on erroneous systems and mistaken principles. Telford and McAdam are undoubtedly the individuals of all others the most entitled to commendation for such improvements as now exist in the modern method of construction, and although the former's plan has since entirely given way before that of the latter, it still lays claim to some attention as an improvement on that of his predecessors, and perhaps as a preliminary step to the elucidation of those principles which were afterwards made known by his successor.

His plan consisted in first paving a foundation seven or eight inches in depth with rubble stone, laid in contact with each other on their flat and broadest sides, and paving their sharp points up. On these a covering of clean gravel and very small fragments of stone were laid to the depth of four inches, and rammed into the interstices of the paving until the whole was solidly imbedded in a mass. The road-bed presented by this process was sufficiently solid, but both more expensive and less enduring than that adopted by McAdam; and on a careful examination and comparison of the two methods, it will appear that it was moreover characterized by faults, on the absence of which all the fundamental principles of good road-making depend; and that, without their correction, no road, however faithfully executed, could possibly for any length of time retain its solidity of structure and evenness of surface. This, however, may be better explained after laying down Mr. McAdam's plan.

The stones most generally made use of in constructions after this plan are flint and limestone; the first because of its greater durability, the second because of its greater facility of amalgamation. These stones are to be broken in fragments of not exceeding two inches in thickness either way, and laid on a surface previously prepared for its reception by a covering of gravel to the depth of six inches. This is called the first layer, and is to remain for the space of two months, when a second layer of the same material and four inches in thickness is to succeed; and again, at the expiration of two additional months, a third layer, in all respects similar to the second, finishes the work. Due attention must be observed in the interim to preserve the surface even until the whole body becomes consolidated,—to prevent the introduction of round pebbles, which render a complete amalgamation of the angular stones impossible,—and, above all, to exclude from the superstructure, earth, clay, and chalk, which, being absorbents, either hold or conduct water to the soil, and thereby cause its speedy destruction. This system is based on the presupposition that the native soil, when perfectly free from moisture, is capable of sustaining any amount of pressure without yielding. A moment's reflection will convince of this fact, and once admitted as an axiom, it requires no further argument to demonstrate that the solidity of a road bears no proportion to, and is altogether independent of, the thickness of the superstructure, and that its permanency, where the crust has been rendered perfectly impervious to water, depends entirely on the character of the stone used in its construction. It is a misapprehension on this important point that has been at the bottom of all the failures in the attempts at McAdamization made in this country. Stones are broken up in fragments of the requisite size, but sufficient care is not observed in the formation to exclude all such ingredients as can in any way act as conductors or absorbents. The mal-effect of the introduction of such ingredients is almost too obvious to need explanation. The moment that frost appears, the expansion, by congelation of the water absorbed, displaces the materials of which the road is composed, and thereby furnishes a passage to the soil for the deposite of under water. Directly this effect is produced the soil is effected, gives way, and deprives the crust of its natural support, when, as a consequence, it must necessarily go to ruin. The same effect is apparent in Telford's plan, by the introduction of *pebbles* in the superstructure; and the Romans, though guarding against it by the nicest workmanship, were evidently ignorant of the fundamental principle, that the native soil must sustain the whole pressure of the superincumbent weight.

The time that should elapse between the deposition of the different layers of the road is, of course, dependent on, and varies with, the amount of travel upon it. The principal care should be in a due observance that the surface of each distinct layer be preserved in a uniform state of smoothness, and that the layer be fairly consolidated before it is charged with the superincumbent covering.

A rigid adherence to these instructions cannot fail in producing a road of the greatest durability and uniformity of surface; and it is matter of no little surprize and vexation to us, that, notwithstanding the plain and simple manner in which McAdam has laid down and elucidated the principles of his system, and the particular directions which he has furnished for carrying them into execution, men should be found so pertinaciously bent on pursuing their own crude notions as to disregard them *in toto*, and, in violation of all common sense and experience, to multiply absurdities that the merest tyro might detect.

It is reasonable to ascribe the commission of these absurdities to the ignorance of superintendants; but if not, they must emanate from a less venial source: and, in either case, it is high time that such measures be taken as will place the construction of roads hereafter in more competent hands, so as to insure to the public, at least, a more satisfactory expenditure of their money, than, we regret to add, it has been their fate yet to acknowledge. The faults in Telford's plan have been fairly pointed out and explained—why not correct them? McAdam's system has been experimentally proved

to be the best, whether it be regarded as to quality, durability, or economy in construction—then why not adopt it?

We might enlarge this subject to a much greater extent, and numerous examples might be adduced in corroboration of what is stated above concerning the inefficiency of persons engaged in the construction of public roads; but this Journal is already so rich in materials of this description, that it would be superfluous to add any thing further here, and we therefore take our leave in recommending the numbers alluded to to the careful perusal of all persons interested in the subject, with an assurance that their time will be fully compensated.

F.

New-York, Nov. 23, 1833.

No. III.

SIR—The faculties of the human race may remain for generations in a state of torpor, but when once roused into action, they cannot easily be lulled again into inactivity and repose. Thus all innovations on old established customs, however plausible in appearance, are ever treated with distrust, and only admitted to confidence after a long series of successful experiments may have demonstrated the truth of the principles advanced. Then, as the eyes of men gradually open, and the cloud which had obscured their understandings is dispersed, they begin to marvel at the obtuseness of their own perceptions in not sooner comprehending the nature of the advantages predicted. How far this will be exemplified in the introduction of steam carriages on common roads, as a substitute for horse power, in the transport of goods and passengers, remains yet to be proved. Sceptics have not been wanting, to vociferate their timidity against its preferment, and pronounce its visionary character; and yet, the time may not be distant when the project will be hailed by the whole British nation as a confirmed blessing, and another step in the grand march of practical science. She may, ere long, be destined to witness her highways and byways, like her railroads and rivers, traversed from one end of the kingdom to the other, under the all-pervading influence of steam.

Experiments have already been made on a large scale, and with sufficient success to demonstrate to the minds of all those who feel an interest in the subject, the practicability, as well as capability, of the project, to realize all the hopes and expectations with which it has been endowed by its projectors. That it is destined, at no very remote period, to mark a new and important era in the means of intercourse among our transatlantic brethren, it would be folly to entertain a doubt; but, at the same time, we do not hesitate to say, that however applicable it may be to their present condition, the time is not yet arrived when its adoption as a matter of expediency can be recommended to this country. Our situation, in this respect, is in no way analogous to that of Great Britain. What would act as a benefit and blessing to her, would, in this case, prove a positive evil to us. But, before attempting to maintain this position, it will be necessary to state the principal objections already advanced against its introduction. They are as follows:—The insecurity of carriages so propelled; the liability of boilers to explosion; the annoyance of travellers by noise of machinery, and the escape of smoke and waste steam. These objections were in part answered before the House of Commons, during the examinations there held to collect information on this subject. It was then stated that the construction of the boilers was such that the steam could only act in very small quantities on any one part, and that even in the event of explosion, the danger would be comparatively trifling, and seldom or never attended by loss of life; that the escape of smoke might be prevented by the use of coke; and that the waste steam might be made to pass into the fire to increase the draft. It was further stated, that carriages properly constructed were capable of attaining a velocity of from ten to thirty-five miles per hour, on a level; that an acclivity of one in six had been surmounted at the rate of sixteen and a half miles per hour; and that a practical velocity of from twelve to fourteen miles per hour, where the minimum breadth of the wheel tire was three and a half inches, might be sustained without injury either to carriage or road.

How far these positions will hold in practice we are not at present prepared to say. But whatever may be the result in England, we need not hesitate to repeat the assertion that the period is very remote when the adoption of steam carriages will be deemed justifiable on the roads of America. It must be remembered that England is burthened with a large surplus population, and that every tax on agricultural produce, as a consequence, is accompanied by a proportionate degree of distress. Every suggestion, therefore, in the way of relief, commands immediate attention, and receives encouragement and support according as its merits may seem to justify. In Great Britain, there are more than a million of horses engaged in various ways in the transportation of goods and passengers; and it is estimated that it requires as much land for each horse as would on an average support eight men; or, in other words, the adoption of this new project would increase the capacity of the country to maintain eight millions of souls over and above what it is at present burthened with. Now, under these circumstances, it cannot be denied that the subject is deserving the attention of all philanthropists, not only as having a tendency to alleviate the distress of a large and meritorious portion of the population, but also as obviating the existing necessity for the abuse of that noble spirited animal, the horse. But these arguments cannot obtain in a country like our own, where the whole amount of population is small in comparison of the extent of territory; where large tracts of fertile land yet remain untilled, and extensive forests unlopped, by reason of the paucity of agriculturists. These blanks must be filled up before our harvests can possibly prove unequal to the demand made against them; and then it becomes a question of economy as combined with general convenience to all classes of persons interested.

As to economy, it is roundly asserted by our brethren on the other side of the water, that steam coaches can be run for from one-third to one-fifth the cost of post-coaches. This may be true enough—indeed it is believed to be so, from the fact that an ordinary coach, weighing two tons, can carry but eighteen persons, while a steam coach of the same weight may be made to carry double that number, and that the action of the wheels, where the tire is six inches wide, has a tendency rather to consolidate than cut up the road.

But another consideration of more importance to us claims attention, in the price of coke, which must necessarily enter largely in the expense of running all engines of whatever description, where steam is to be rapidly generated. It is a well established fact, that the price of this article is much greater in this country than in any other; so much so, that it becomes a question whether its use would not thereby be altogether unavailable. Should this prove to be the case, then other means must be resorted to for the destruction of the sublimated and volatilized matter always attendant on the combustion of coals in their natural state. This not admitting of any chemical combination, must be effected in some way by mechanical means. Before the House of Commons, it was stated that the effect might be produced by causing the smoke to pass through sand mixed with quicklime, by which the carbonic acid being absorbed, the carbonic oxyde and hydrogen was left in such a free state as to be combustible. This process, however, is altogether too slow in its operation to admit its practical application for any purposes of locomotion; and it is therefore only deserving of notice as an incitement to further discoveries.

But it may be asked, and with some show of reason, where are our extensive mines of anthracites? This species of coal is of such a nature as at once to do away with every objection that has been advanced against the use of other descriptions; for, not producing smoke of any kind, it may be used with impunity, without having recourse to artificial preparations. This would seem to be true enough, and to a certain extent is so—that is to say, the use of anthracite coals would most assuredly remedy the evil to which the public would be exposed from the escape of smoke, where bituminous coals were used in the generation of steam to propel carriages; but the difficulty unfortunately rests in the fact that steam cannot be generated with sufficient rapidity for this purpose, without the action of flame upon the boiler; and the combustion of this coal not producing any flame, recourse must be had to some extrinsic means for the attainment of that end. This end, it is true, has been particularly attained by experiment in the decomposition of water, by passing a jet, under the action of the engine, constantly over the bed of hot coals. But this experiment, though it may eventually be made to answer the purpose, does not as yet seem to have been sufficiently tested in practice to render it available in ordinary cases; and as we do not wish to indulge in speculations of any kind, we shall forbear to express an opinion on the subject until the results of more extended trials may be made known.

It requires, however, no great stretch of human foresight to predict that the introduction of steam carriages on common roads will be a signal to the abandonment of all ordinary modes of travelling. They must be exclusively adopted or not at all, and therefore it will be necessary for all persons, desirous of moving from place to place, to be dependent entirely on the public conveyances for its accomplishment. Now, it is a well known fact, that all farmers who inhabit mountainous districts, or such as are yet unpenetrated by either railroad or canal, must of necessity be their own carriers. The expense of maintaining one, two, or more horses, is comparatively trifling. They are absolutely necessary to the prosecution of their agricultural pursuits, and after their harvests are gathered in, they are equally useful in the transportation of the proceeds to market.

These observations naturally suggest themselves as objections to the introduction of this new mode of conveyance among us for a long time to come; and they are introduced here simply because we think that we have discovered a growing disposition among some of our speculators to embark in the project. Our necessities alone should dictate the period when this revolution ought to take place; and even then, where so many changes are to be made, so many prejudices to be overcome, and so many jarring interests to be reconciled, all the influence of legislative support will be requisite to establish it on a firm foundation.

This period, however, it is believed, has already arrived in England. She feels herself bending under a burthen which, unless soon lightened, will eventually bear her down. She feels the necessity of adopting some decided measures for the relief of the lower orders of society. With these feelings generally prevalent, it is not to be surprized at that her mechanics should take advantage of the first opportunity that offered a fair prospect of success, to start a fresh track, and open a new avenue to the resources of the country. The facilities afforded by the genius of McAdam pointed out the way; the hard and uniform surface of his roads suggested the practicability of the undertaking; and although we sincerely deprecate its immediate adoption here, we earnestly wish it all the success, in the land of its birth, that its undoubted merits have a right to claim.

F.

New-York, 8th Dec., 1833.

TENNESSEE AGRICULTURAL AND HORTICULTURAL SOCIETY.—A society under this title was recently organized at Nashville. Our readers will perceive that Dr. Lindsley, President of the University of Tennessee, is at the head of the society. His literary connection, his enlightened views, and his zeal for the cause of the farmer, render his selection an omen of much prosperity to the society.

OFFICERS.

Dr. P. Lindsley, *President.*
O. B. Hays and Thomas Washington, Esqs. *Vice Presidents.*
John P. Erwin, *Treasurer.*
Jos. T. Dwyer, *Secretary.*

STANDING COMMITTEE.

On Horticulture—Wm. Pritchard, John Thomas, Dr. John Waters.

On Agriculture—Jos. T. Elliston, John Harding, Wm. Wendel, N. Hobson.

On the Vine—Francis Link, Willo. Williams, Dr. F. Robertson.

On Domestic Animals—William Williams, Jas. C. Robinson, Dr. J. L. Hadley, Ben. Litton, John Nichols.

The following were appointed to prepare a code of By-Laws for the Committee: Thos. Washington, O. B. Hays, Ben. Litton, John P. Erwin, and Jos. T. Dwyer.

The following gentlemen were elected Honorary Members:

Jesse Buel, Esq. Albany, N. Y.
Nicholas Longworth, Esq. Cincinnati, Ohio.
Jesse H. Powell, Esq. Pennsylvania.
N. Goodsell, Rochester, N. Y.
Jesse E. Hitchcock, Baltimore.
D. K. Minor, New-York.

JEFFERSON COUNTY SHOW AND FAIR.—From the Watertown Register, of Oct. 2, we extract the following notice of this Fair:

Tuesday, the 24th ult., was another proud day for Jefferson. The weather was propitious for the occasion, and about 6,000 persons assembled for the purpose of attending the interesting anniversary of the Agricultural Society. At an early hour, the pens were crowded with cattle, horses, sheep, and swine, and the court room spread and decorated with domestic manufactures. Of the former we need only to say, that they showed the best blood in the United States, and the display was as fine as we ever saw. Of the domestic manufactures, although the variety was not so great as we have seen on former occasions, yet those exhibited were of a superior quality—the carpets, flannels, and diapers, particularly. The specimens from the dairy were large, and of a rich kind and excellent flavor. After the examination of the stock and the manufactures, the ploughing match took place, which was most ably contested. The procession was then formed, and marched to the Methodist chapel, where after other services, an interesting oration was delivered by the Hon. David Wardwell, the reports of the committees read, and the premiums awarded. The whole of the proceedings were of intense interest, and were listened to with excited attention.

Mr. Jenison, of Sackett's Harbor, exhibited to the society a specimen of raw silk, from worms hatched and fed on his own premises, a roll of which was done up for the purpose of sending to Europe; also, a quantity of silk of different qualities, prepared in his family, ready for use. So neat was it done up, and so near the Italian article, that it excited admiration and surprize. Although there was no premium for this species of manufacture, yet, in consideration of the benefits to grow out of it, the society generously awarded $10 to Mr. Jenison. Great benefits may result from the notice taken of this production; and it is more than probable the society hereafter will award a premium on this article.

Mr. Le Ray, president of the society, who is now in France, has forwarded to the society a quantity of grass seed, which he denominates *Italian Rye Grass*, with a description of its mode of culture. It grows on common lands, yields in profusion four crops a year, and is adapted to cold climates. This seed can be obtained of the treasurer of the society, and coming from Mr. Le Ray is recommendation sufficient to insure a trial as to its usefulness hereafter.

A variety of grapes was exhibited, from the gardens of Mr. Butterfield, Major Kirby, and Major Brown, which proves that our soil and climate are adapted to their culture.

INSTRUCTION—DR. BEATTIE AND HIS SON.—We can recollect of having spent many an irksome hour in committing to memory and reciting the Westminster catechism, with little or no emotion, and with scarcely an idea impressed on the mind. If parents and teachers would instruct from nature as well as from books, their instructions would be effective and happy. Dr. Beattie adopted the following method with his son:

He had reached his fifth or sixth year, knew the alphabet, and could read a little, but had received no particular information with respect to the Author of his being. In the corner of a little garden, without informing any person of the circumstance, I wrote in the mould with my finger the initials of his name, and sowing garden cresses in the furrows, covered up the seed, and smoothed the ground. Ten days after he came running to me with astonishment in his countenance, and told me his name was growing in the garden. I laughed at the report, and seemed inclined to disregard it; but he insisted on my going to see what had happened. 'Yes,' said I, carelessly, on coming to the spot, 'I see it is so—but what is there in this worth notice? Is it not mere chance?' and as I went away he followed me, and taking hold of my coat, said, with some degree of earnestness, 'It could not be mere chance, for somebody must have contrived matters so as to produce it.'

'So you think,' said I, 'that what appears so regular, as the letters of your name, could not be change?' 'Yes,' said he with firmness, 'I think so.' 'Look at yourself,' I replied, 'consider your hands and fingers, your legs and feet, and other limbs; are they not regular in their appearance, and useful to you?' He said they were. 'Came you then hither by chance,' said I. 'No,' he answered, 'that cannot be; something must have made me.' 'And who is that something?' I asked. He said, 'I don't know.' I had now gained the point that I aimed at, and saw that his reason taught him (though he could not express it) that what begins to be must have a cause; and that what is formed with regularity must have an intelligent cause. I therefore told him the name of the Great Being who made him and all the world; concerning whose adorable nature I gave him such information, as I thought he could, in some measure, comprehend. The lesson affected him greatly, and he never forgot it, nor the circumstance that introduced it.

PROSPERITY OF ILLINOIS.—The following letter, from the Vandalia Whig, affords an example for clergymen, and particularly missionaries, to make public information connected with the prosperity and happiness of the people.

We copy with pleasure the following interesting extract of a letter from the Rev. J. M. Peck to Gov. Reynolds. Mr. Peck has travelled over the State perhaps as much as any person in it. He has recently made the tour of the Northern Counties, and takes an interest in noting the progress of every valuable species of improvement; his comparison between the appearance of things there, in the present and former seasons, may doubtless be taken as founded on correct data. Mr. P. is a gentleman of high character, of intelligence, and close habits of observation. His letter may be safely trusted "beyond the Blue Ridge" by those who wish to hear from the "far West."

ROCK SPRING, Ill. Oct 12, 1833.

GOV. REYNOLDS:

Dear Sir,—It will be gratifying to you, as it is to me, to learn that our state is improving rapidly in population, industry, enterprize, wealth, character, and intelligence. The crops, generally, are more than ordinary. I judge that two acres of corn have been raised this season wherever one was before, and the amount of new ground broken, fences made, and buildings erected, is double to any former year.

Schools are increasing—and a better order. Sunday schools have gained about twenty-five per cent. The class of emigrants who come are generally of the first order—then of more wealth, intelligence, and enterprize.

Chicago is destined to outstrip every other town in the State. The average amount of buildings has been one a day. Seventy arrivals of schooners, and two steamboats, from April 18 to September 11. Population now about eight hundred. Thirty stores, and plenty of mechanics.

Ottawa does not thrive rapidly. Our canal commissioners ought to have fixed the town four miles up Fox River, at the Rapids. There is the great place for business, and will eventually become one of the greatest water power places in the great West.

The Railway from Chicago to the foot of the Rapids of Illinois, (not at Ottawa,) ought to be going forward, and I think should cross Fox River at the Rapids of Fox, and run from thence straight to Chicago.

Indeed, the project should now be entered upon of a Railway from Chicago to Alton. Make it first to the navigable waters of Illinois, say Little Vermillion.

If once made to that point, I have no doubt the business would more than pay the interest on the capital and ordinary expenses. Then commence at Alton and make one to Springfield. When this is completed, I would defy the world to prevent the two ends from being tied together. Twenty-five years will see this done.

Excuse my rude suggestions—doubtless the subjects have occupied your thoughts before.

I will only add, a most interesting, because most useful, discovery has been made in the upper country, to make prairie fence for 20 cents per rod—and I think it will last forever. It is made of turf or sod, but in a peculiar way, so as to bring the grass wholly outside. If it succeeds, as I believe it will, the question about the immediate cultivation of our large prairies is settled—and millions of acres in Illinois can be put under immediate cultivation.

But I will trespass no longer on your time.

Very respectfully, yours, J. M. PECK.

PLOUGHING IN WINTER TO KILL INSECTS.—Professor Rennie says, the common notion of frost killing insects is far from being correct. We, however, give the following from the Bucks County (Pa.) Intelligencer:

Last winter, observing several weeks of open and mild weather, unsuitable for threshing, I ploughed up a stiff sward, in a field which had been infested with the *Wire-worm*, for nearly thirty years. The ravages of this insect had even been so great, that not more than half a crop had been raised on the field during all this time. The ground was ploughed a good depth, say from eight to ten inches. About the middle of April it was well harrowed, and afterwards ridged. I planted about the first of May, and, from the present prospect, I should think the field would average forty bushels of corn per acre—and no *Wire-worms* appeared. I know not whether success is to be attributed to the time of ploughing; but it is an experiment, which, giving a favorable result in one instance, may induce others to examine into the best means of guarding against this potent enemy to agriculture. AGRICOLA.

PETITIONS TO THE LEGISLATURE FOR AGRICULTURAL SOCIETIES AND SCHOOLS.—It affords us pleasure to learn that petitions are circulating in many of the counties for these laudable and patriotic objects. We hope this example will be followed by every county, if not every town of the State. As far as our information extends, the intelligent of both country and city heartily countenance the undertaking. The following may serve as a specimen of the county proceedings:

ERIE COUNTY.—At a convention of the agricultural citizens of the county of Erie, convened at the court-house in the city of Buffalo, on the 13th of November, 1833, in pursuance of the recommendation of the board of supervisors of said county, Lewis F. Allen, Esq. of Buffalo, was called to the chair, and Ralph Plumb, of Collins, appointed secretary.

The following delegates from the several towns appeared and took their seats:

Amherst—John Hutchinson.
Aurora—Jonathan Hoyt, Jonathan Bowen.
Alden—Jonathan Larkin.
Buffalo—Lewis F. Allen, Benj. Hodge, jr. Wm. W. Chapin, and Amos Callender.
Boston—Epaphras Steele.
Collins—Ralph Plumb.
Colden—Leander J. Roberts.
Concord—Carlos Emmons.
Clarence—Benj. O. Bivens, Edmund Hull.
Eden—Harvey Caryl.
Evans—Aaron Salisbury.
Hamburgh—Elisha Smith.
Holland—Moses McArthur.
Lancaster—John Brown.
Newstead—Wm. Jackson, Stephen Osborn.
Sardinia—Henry Bowen.
Wales—Nathan M. Mann.

After a full discussion and interchange of sentiments upon the subjects of the agricultural interest of the country, and the necessity and importance of immediate and united effort in some measure best calculated to promote the general improvement in every branch of the same, the following resolutions and petition were unanimously adopted.

Resolved, That the Senators of the eighth district, and the Members of Assembly for the county of Erie, be requested to use their influence in passing a law making an annual appropriation from the State treasury, of $25,000, for the purpose of promoting the agricultural interest, by establishing a state institution, and distributing in each county, at the rate of $150 to each member of Assembly which such county shall be entitled to elect, to be applied in awarding premiums on agricultural productions, collecting choice and valuable seeds and animals, disseminating agricultural publications, and fostering those interests which relate strictly to agricultural improvement.

Resolved, That the several editors of newspapers in the eighth district, and the editors of the daily papers in Albany, of the Genesee Farmer, and New-York Farmer, be respectfully requested to publish the proceedings of this convention, with the petition and resolutions attached to the same.

Resolved, That we earnestly appeal to our agricultural brethren in different parts of the State, to petition the legislature on the subjects above stated, and that they use their exertions for the passage of a law in accordance thereto.

To the Honorable the Legislature of the State of N. York:

The undersigned, your petitioners, having met as delegates to an agricultural convention, and representing the several towns of Erie county, do respectfully represent to your honorable body, that taking a deep interest in the welfare of the State and their fellow citizens generally, they esteem it their duty to invite the attention of the legislature to the important and rapidly increasing interests of the agricultural population.

At the last session of the legislature, upon the petition of many inhabitants in several of the counties of our state, the committees on agriculture in each branch of that body made able reports on the policy and advantage of establishing an institution for the promotion of agricultural science, and the extension of its benefits among our wide spread community; and also, of creating agricultural societies in the several counties of the State, appropriating from the treasury $25,000 annually for that object, allowing out of the same to each county $150 for every member of Assembly such county shall be entitled to, and the balance to be used for the benefit of the agricultural institution.

To the conclusions and sentiments of those reports the undersigned most heartily respond, and will express the opinion, that in no way do they believe so important services can be rendered to our state at large, and particularly of the farming community, as may be done by passing a law at the present session, to carry into effect the views therein expressed.

The undersigned have fully examined the draft of a bill introduced into the last House of Assembly by Mr. Skinner, and purposely laid over for an expression from our citizens generally on its merits; and after full deliberation, we most earnestly pray that your honorable body will at this present session pass the same, or a bill with like provisions, into a law, believing that a most benign and salutary influence will result to the general good of the state at large.

LEWIS F. ALLEN, Chairman,
RALPH PLUMB, Secretary.

JEFFERSON COUNTY.—We have room for only an extract:

To the Senate and Assembly of the State of New-York:

The undersigned, in behalf of the Jefferson County Agricultural Society, and at the instance of great numbers of their fellow-citizens of the County, of all professions and occupations, beg leave, respectfully, to represent the strong sense entertained by them of the expediency of further providing by law for the encouragement of agriculture.

It is obvious to the most common observer, that the Agricultural Society of Jefferson County, through a course of seventeen years of its existence, has exercised, in a high degree, a beneficial influence upon the agriculture of the county. Its good effects are exhibited, among other things, in the introduction of new and improved breeds of domestic animals—in the general practice of better and more systematic husbandry—and in a wholesome spirit of emulation, which it has excited among our farmers, imparting to the property invested in agricultural pursuits increased value, and to the pursuit itself, increased interest and respectability. We anxiously desire to see this source of good perpetuated among us, and its benefits extended to every part of the state by legislative enactments, providing for its permanent support.

J. LE RAY DE CHAMOUNT,
E. TEN EYCK,
E. KIRBY,
GEORGE WHITE,
OLNEY PEARCE,
ORVILLE HUNGERFORD.
} Executive Committee.

Jefferson County, December, 1833.

MONROE COUNTY.—On the 12th of December, a meeting of the Monroe Agricultural Society was held—Wm. Garbutt, President of the Society, in the Chair, and L. Tucker, Secretary. The proceedings indicate enlightened views of this important subject.

BONE MANURE FOR FLOWERS.—It is said in an English publication, that bone manure will produce more luxuriant flowers than any other manure. It is very convenient for use in green-houses, being cleaner and less bulky. Its effects, however, will be scarcely perceptible without first undergoing fermentation by admixture with other manure.

HEATING STOVES.—The wood used in close stoves should be sawed to the length of three or four inches, and put as near the door or draft as possible; one or two sticks, if placed parallel to the door, will produce a much greater body of flame than if placed in the usual direction.

EMBANKMENTS IN ENGLAND.—We lay before the readers of the Farmer a specimen of the laborious and enlightened undertakings of the English. The day will come when similar improvements will be made in this country. The Farmer's Magazine, of July, 1832, thus notices the Sutton-Wash Embankment:

This embankment is constructed across a dangerous estuary, in the crossing of which, many lives and much property have been lost. On Thursday the 5th May, the noon-tide ceased, and for ever, its flowings over an area including above 15,000 acres! Properly to comprehend the magnitude of the work, and to appreciate the ability evinced in its execution, the statement of a few facts may be necessary. The Bank has to resist for four hours in every twelve the heavy pressure of the German Ocean or North Sea, the length of which is 1400 miles, and the circumference about 5,000, and which a north-westerly wind brings up in tide-time, through the estuary, with astonishing violence and rapidity. The length of the cross-bank from the bridge to the opposite side in Norfolk is one mile and a half. The time occupied in its construction has been about three years and a half, and the force employed to conquer the mighty deep 900 men, and 260 horses, under the able superintendance of Mr. Roffey. To maintain order and subordination for so considerable a time, among so numerous a body of rude and uncultivated men, has been, in itself, a task of no small difficulty. The bank will be passable for coaches about the end of July, and will then furnish the best line of communication between Norwich and York, Liverpool and Manchester, saving a distance of full thirty-six miles, and uniting the Northern and Eastern parts of the kingdom. The road being along a high bank, with a palisade continuous with the bridge, will afford, at high water, one of the most pleasing prospects the eye can desire. The bridge is allowed to be unequalled in modern buildings; it is composed of the best British oak, with a moveable centre, of cast iron, fifty-two feet span. The new outfall of the Nene into the ocean, cut through a distance of eight miles, was the first part of this undertaking, and, during two years, it employed from 1000 to 1300 excavators. It is one of the finest tideways in Britain, and of sufficient depth to allow a man of war to float close to the bridge. During the whole progress of these great works not one failure of any kind, has, I believe, occurred.

The whole of the vast improvements upon the eastern coast, by which 90,000 acres will ultimately be taken from the ocean, were projected by the late Mr. Rennie, and have been executed by his successor with equal ability and success.

EGGS FROM FRANCE.—We already begin to hear of canal boat loads of eggs from Ohio. Soon they will, perhaps, come from the Upper Mississippi.

It appears from official statements, that the eggs imported from France amount to about 60,000,000 a-year; and supposing them to cost at an average 4d. a dozen, it follows that the people of the metropolis and Brighton (for it is into them that they are almost all imported) pay the French above £83,000 a-year for eggs; and supposing that the freight, importers' and retailers' profit, duty, &c., raise their price to the consumer to 10d. a dozen, their total cost will be £213,000. The duty, in 1829, amounted to £22,189.—[M'Culloch's Commercial Dictionary.]

American Silk.—On the supposition that we have annually imported silk to the amount of four millions dollars, since 1730, when the first filature of silk was established in Philadelphia, the whole amount of this would be 252,000,000. Had this quantity been raised and manufactured in this country, a far greater number of our people would have been employed than has been in the business attending its importation. The following we take from a communication to the Genesee Farmer:

"In 1770 a filature was established in Philaphia, and premiums announced.

"In 1771, about 2300 lbs. were brought there to reel. The ladies in particular gave much attention to the subject; as early as 1770, Susanna Wright, of Lancaster county, at Columbia, made a piece of mantua of 60 yards in length from *her own* cocoons. To give eclat to these *Colonial designs*, the Queen of Great Britain gave her patronage by deigning to appear in a Court dress from this *American Silk*. Yes, in American Silk! but at the present day all our silk dresses, and even our ornaments for public buildings, must be imported. 'Grace Fisher, a minister among Friends, made considerable silk stuff; a piece of her's was presented by Governor Dickinson to the celebrated Catharine Macauly.' Many ladies, before the Revolution, wore dresses of *American Silk*."

Large Oats.—A correspondent to the Genesee Farmer gives the subjoined experiment with these oats:

"They may be obtained from either England or Scotland, where their first cost is from six to seven and even eight shillings sterling the bushel, making the cost in this country from two to three dollars a bushel. I last spring obtained a few bushels of such oats by a packet ship from London; the kernel was round, thin skinned, and without tail, weighing forty-eight pounds per bushel. They were sown on a light piece of ground the 3d of May, and were harvested the 21st of August. The straw was firm, and stood up well, and the yield appeared abundant, but I question if the produce will weigh as much per bushel, as the seed. For this difference there are at least two sufficient causes—the one is that the soil was too poor; the other that in consequence of not having English seed enough to sow out the field, it was finished with the common white oat of the country, weighing not more than 32 lbs. the bushel. This last circumstance would destroy my confidence in the produce as seed oats, though I still consider them infinitely better than the common oats for that purpose. When thrashed, I shall ascertain their weight per bushel."

Preserving Bacon.—Among the best flavored dishes that grace the bounteous tables of this country, bacon or ham ranks, if not the first, certainly inferior to none.

To make good bacon, the meat should be hung with the thickest part upwards, to prevent the exudation of its juices, and each piece clear of the wall, or other pieces, and there left until it is quite dry. Some sound chips, with a few billets of hickory wood, or corn cobs, make the best smoke, and also keep the house warm, which is important; for if the smoke-house is cold, all former care will be in some measure lost; a damp will settle on the bacon, and it will have a bitter flavor. Bacon should never be smoked in damp weather, as is too often practised, as by it the meat gains nothing in color, but acquires a bad taste; one or two good fires each day will smoke the pieces, in precisely the same time required for salting, that is to say, hams four weeks, shoulders three weeks, and middlings and other pieces two weeks.

I have used red pepper with, I think, decided advantage, by throwing a few pods into each fire while smoking; this article, in salting or smoking, or in both, improves the flavor of the meat, and tends to secure it against insects. If the meat-house is dark and cool, the meat may be left hanging until wanted for use; but if otherwise, it should be taken down at the commencement of warm weather, and packed away in salt, clean hickory ashes, or oats; either will secure it from insects or dripping, if the meat be entirely covered over, and the interstices between the pieces properly filled. The use of dry salt will not increase the saline flavor of the meat. I have known bacon very finely preserved, by preparing a strong ley of wood ashes, concentrated by boiling, into which, when cold, the pieces were dipped.

The alkali and the oil of the meat form a coating of soap in all the crevices, as well as on the surface, which is an admirable protection against the insect tribe.

Some attention should be paid to the construction of the smoke-house. As before observed, it should be rendered warm during the process of smoking, and if it is to retain the meat through the season, should be cool, dry and dark. A brick stove in the centre of the floor, with openings for the escape and ascent of the smoke in the sides, is among the best contrivances usual among us; but this becomes heated, and does not entirely obviate the danger arising from the occasional falling of the meat, by which houses are not unfrequently burned. It will probably be more safe and convenient to build a chimney, with a very low fire-place, as for a sitting-room, and when the chimney is carried up four feet, close it at the top. A small grate placed a few inches from the hearth, will assist the burning of the wood. By having a chimney thus constructed the blaze of the fire can never injure the house or meat; no pieces can fall into the fire when a string or nail gives way, and whilst the blaze and smoke ascend the blind chimney, the smoke must descend again and pour into the smoke house. This plan is highly recommended for its safety and convenience, by a gentleman whose advice is entitled to great respect, and to whom I was originally indebted for several of the directions here given, the value of which I have verified in the course of my own experience.

AN ADMIRER OF GOOD BACON.

An Improvement in the Mode of Raising Annual Flower Seeds.—After sowing the patch of seeds, and covering it with fine moist soil, place a garden-pot inversely over it, until the seeds have struck root; then raise the pot up two or three inches, keeping it thus supported for a few days, and then remove it entirely. The pot not only keeps the soil moist, but by the sun heating the pot, the seeds come up much more quickly than otherwise they would do, in consequence of which the seeds need not be sown so early by a fortnight or upwards. The young plants are therefore less exposed to injury from cold or late spring frosts. Hollow tiles, instead of pots, answer equally well, except that where mice are, they have excess to the ends.—[Gardener's Mag.]

Preserving Flour Sweet.—The following method of preventing flour from spoiling strikes us as important as it is simple and scientific.

A new invention has been discovered for the purpose of keeping flour sweet for a length of time in warm weather. It has been practically applied at the flour-mill of Nathan Tyson, of Baltimore, and is represented to answer the purpose for which it is intended. The process is said to be simple, and to consist in passing the flour through a heated chamber, the temperature of which is sufficient to expel from it whatever natural moisture or dampness it may contain, without any injury to the valuable properties of the flour but to the contrary imparting to it additional life, strength and color. It is anticipated that this invention will be the means of saving annually to the people of the West thousands of dollars on their shipments to our market.

Manual Labor School.—The first self-supporting school in the United States was opened in May of 1813, in Derby, at the head of navigation on the Housatonic river, in Connecticut. It continued eight years, during which time about twenty lads paid all their expenses for board, clothes, tuition and books. At the time this school was opened, public sentiment was almost unanimously against it. The common remark was, that "it was good in theory, but could not be put in practice."

Will "An Old Man" give us more of the particulars of this school?

Productive Small Farm.—The Ohio Repository furnishes the following product of 15 acres of improved land.

Mr. Thomas Gibbons, of Harrison co. O. has a farm of 20 acres of land, 15 of which are improved. He keeps 3 cows, sells 12 lbs. of butter per week, and from 50 to 60 lbs. of cheese per annum. He killed 2200 lbs. of pork; sold 1723 lbs., and keeps 7 hogs over winter. He raised 100 bushels of wheat, and 2½ acres of corn; mowed 3 tons of clover hay and one of timothy, and has from 7 to 9 bushels of clover seed for sale. He keeps two horses and 10 head of sheep; has 3 children; and his hired labor cost him but $5.

Flour on the Canal.—The Utica Observer of Nov. 26 states, that *fifty-six thousand nine hundred and fifty-eight barrels of flour*, seventy-one thousand five hundred and sixty-nine bushels of wheat, and forty-three thousand nine hundred and forty-eight gallons of distilled spirits, passed that place east during the week ending on the 24th November. The quantity of flour is greater by far than any week since the completion of the canal.

Apple Trees.—A gentleman in Essex, England, having in his orchard many old supposed worn out apple trees, which produced fruit scarcely larger than a walnut, last winter took fresh made lime from the kiln, slacked it with water, and (without allowing time for its caustic quality being injured by imbibing fixed air) well dressed the trees, applying the lime with a brush. The result was, that the insects and moss were completely destroyed, the outer rind fell off, and a new, smooth, clear one formed; and the trees, although some twenty years old, have now a moist healthy appearance. The same treatment may be extended to other fruit bearing trees, and probably with a similar beneficial result.

Box-wood as a Substitute for Hops.—M. De Petit Thouars lately stated to the Philomathic Society of Paris that more box-wood than hops was employed in making almost all the beer brewed in Paris. Box-wood contains a powerful sudorific principle with a bitter taste, which has lately been separated, and is known under the name of Buxinia.—[Bull. Un.]

Wine from the Common Bramble.—Five measures of the ripe fruit, with one of honey, and six of water, boiled, strained, and left to ferment, then boiled again and put in casks to ferment, are said to produce an excellent wine. In France, the color of wine is often rendered darker by a mixture of blackberries with grapes.—[Recueil Industriel.]

Vermont.—A late number of the London Courier contains the following extract of a letter from America:—"I am travelling in Vermont for pleasure and information. I have journeyed 500 miles in my own carriage, by easy stages, and have not seen a single person in my progress to whom I should have dared to offer alms! As I was detained an hour or two a few days since, I saw a sturdy looking farmer pass the inn, driving a one-horse cart loaded with wool, on which he was seated. He drove to a store, shouldered his bales of wool, one after another, and placed them in a merchant's shop. Who do you think he was? Palmer, present Governor of the state of Vermont!"

On Objections to the Received Theory of Rain. By U. A. B. [From the American Railroad Journal and Advocate of Internal Improvements.]

An article in the New-York Farmer, Vol. VI., page 343, entitled "Objections to the Received Theory of Rain," taken from Field's Naturalist's Magazine, contains some sentiments that are not perfectly accurate. As you are desirous of correcting all errors, more especially such as have appeared in your publications, I send you a short comment upon that article.

The author expresses the theory which he objects to in the following words: "It is the received opinion that rain is caused by the heat of the sun's rays raising water in a state of vapor into the higher regions of the atmosphere, and, being there condensed by the cold, descends again, and thus forms rain." It has always been admitted that water sometimes rises in the atmosphere in the state of vapor, in the absence of the sun's rays, though not often in large quantities. Aqueous vapor is condensed into snow or drops of water, in the lower as well as in the higher regions of the atmosphere, when the quantity of vapor is great and the temperature reduced sufficiently. The first objection there offered is as follows: "That water requires a heat equal to sixty degrees of Fahrenheit's thermometer, to raise it into vapor, according to the commonly received opinion, when experience proves that we have the most rain when it stands below temperate, which is 55 degrees; for instance, the snow in frost and the rain after." Aqueous vapor exists in the atmosphere at all temperatures, though the warmer the air is the larger quantity can be suspended in it. It was formerly supposed that the atmospheric air had an affinity for water, and that this affinity of the air for water increased in such a ratio, that, as the temperature of the air increased in an arithmetical progression, the quantity of water which the air could hold in solution increased nearly in a geometrical progression. But the experiments on this subject made by Dalton, Clement, and some other modern philosophers, have convinced most people who have attended to the subject, that the watery vapor which exists in the atmosphere, is not chemically combined with it, but that it is a gas which supports its own weight independently of the atmospheric air; and that the same space could contain no more of this vapor if the atmospheric air did not exist; that is, when a vessel is exhausted of the air, it will hold no more vapor than when filled with air. But I have reasons to believe that the aqueous vapor is not totally independent of the atmosphere; that, at least, some of it is chemically combined with the air, and that it meets with some difficulty in passing through it. The space which the particles of air or vapor occupy is very small, compared with the interstices or spaces between the particles. The elastic force of this vapor, and consequently the quantity of water which can be suspended in the air, increases as the temperature increases. At the temperature of 55°, its elastic force is sufficient to support a column of water 6·01 inches high; if a greater pressure than this be applied to the vapor, it will be condensed into water; hence, when the temperature of the air is at 55°, which is the same as that of the vapor which exists in it, it may support a quantity of vapor which is equal to a sheet of water 6·01 inches in thickness; if the quantity of vapor over any part of the earth's surface exceeds this, while its temperature is at 55°, it will be condensed into water. The wind, by agitating the vapor, may produce a rather greater, or rather less pressure on it than the weight of its superior part; hence the quantity of vapor, which may be sustained in the atmosphere, may be a little different from that above assigned. At the above mentioned temperature and pressure, the weight of a cubic foot of vapor, or the quantity contained in a cubic foot of air is 5 1-1000 grains. As the temperature of the vapor diminishes in an arithmetical progression, its elastic force diminishes nearly in a geometrical progression; so that at zero its elastic force is sufficient to support only a weight of vapor equal to a sheet of water 0·83 inches thick. When the pressure on any place is greater than the elasticity which corresponds to its temperature, it condenses into drops of water. When the temperature of water is higher than the temperature which corresponds to the pressure on it, produced by the incumbent vapor, the water evaporates.

Several theories of the condensation of vapor into drops of water have been advanced, but they have been strongly opposed. The causes assigned seem hardly adequate to the production of as large quantities of rain as frequently happens. I will therefore state what I suppose to be the greatest cause of the sudden condensation of aqueous vapor. There is much proof, which it is not necessary to detail here, that the aqueous vapor which exists in the air does not always move at the same velocity with the air, or even in the same direction; hence the vapor, by passing into cold air, is condensed into rain. The assertion that there is more rain (including snow) in cold, than in warm weather, seems to be at variance with known facts; though perhaps it may be true as applied to some particular places. According to the experiments of Mr. Hoyle and Mr. Dalton, made during three successive years, the mean quantity of rain in the three winter months, was equal to a sheet of water 7·46 inches in depth; and the mean quantity during the three summer months, was 10·18 inches.

His second, third, and fourth objections need no further consideration than I have already given in treating his first.

His fifth objection is as follows: "There is no vapor arises from the water when the sun has the most influence; for, place a looking-glass over a river, when the sun shines with its meridian force, and it will not so much as dim it; but when the sun is gone down, the vapor rises so as to be visible." During the hottest days, the rivers and ponds are much cooler than the air or any small body which has been exposed to the rays of the sun, at a little distance from the earth or water. It should not be supposed that the vapor would be condensed on any thing which is warmer than that from which it had just arisen. I suppose that the fact that water evaporates faster during the heat of the day, than in the night, was too obvious to be questioned. It requires a long time for large bodies of water to warm or cool, therefore the water, especially in the fall, is usually warmer during the night than the air; for this reason, the vapor which rises during the night frequently condenses so as to produce fogs near the water. It sometimes happens that fog is produced by warm damp airs passing over cold water; this fog *seems* to arise from the water, though it does not. In the spring, when the air is very warm and damp, in its passing over something which will absorb the heat rapidly, as a pond, or a bank of snow, which is more effectual, the vapor is condensed into fog, which has very much the appearance of arising from the snow or water.

His sixth and last objection is this: "If the old theory be true, there would always be the most rain in the tropics, where the sun is vertical, which is not the fact." Evaporation is generally much more rapid in warm than in cold climates; but much of the water which rises in the state of vapor in warm climates is carried to colder regions, where it descends as rain. But there is generally a larger quantity of rain in warm than in cold climates. According to the observations of M. de Costanzo, the quantity of rain which falls annually at Vera Cruz, in latitude 19° 12′, is 62½ inches. According to Dr. Young, the quantity of rain which falls at Charleston, S. C., in latitude 32° 40′, is 50 9-10 inches. The usual quantity of rain which falls at Perth, in latitude 56° 23′, is about 21½ inches. In places where the temperature is nearly uniform, a quantity of vapor is produced as great as the temperature can sustain, when evaporation would cease if the vapor were not transported to some other region. In climates subject to great changes of temperature, a sudden diminution of temperature in some part of the atmosphere, will produce a copious rain if that part of the atmosphere be damp, which by diminishing the quantity of vapor, will cause evaporation to go on rapidly. In England, where the temperature of the air is not subject to such great changes as in the United States, the air is usually damp, evaporation is slow, and the quantity of rain less than in most parts of the United States. U. A. B.

Lowell, Nov. 12, 1833.

Of the Orders of Architecture. [Concluded from Vol. VI, page 345.]

MOULDINGS.—Mouldings are those parts which project beyond the face of a wall, a column, &c. and are employed as ornaments in most Architectural operations.

The regular mouldings are eight in number, and are represented by the following figures.

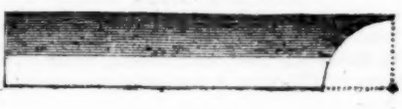
Annular List, or Square.

Astragal, or Bead.

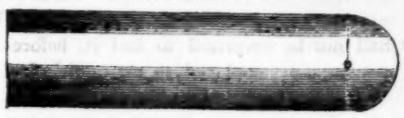
Cima Reversa, or Ogee.

Cima Recta.

Cavetto, or Hollow.



Ovolo, or Quarter Round



Scotia.

Torus.

The forms of all mouldings are referred to a section at right angles to their longitudinal direction, when prismatic, or passing through the axis, if annular; and this is simply denominated the *section*, on account of its frequent use, as oblique sections only occur in mitres. The names of mouldings depend upon their form and situation.

If the section is a semicircle which projects from a vertical diameter, the moulding is called an Astragal, Bead, or Torus; if a torus and bead be both employed in the same order of architecture, they are only distinguished by the bead being the smallest. The tori are generally employed in bases and capitals.

If the moulding be convex, and its section be the quarter of a circle or less, and if the one extremity project beyond the other equal to its height, and the projecting side be more remote from the eye than the other, it is termed a Quarter-Round; this, in Roman architecture, is always employed above the level of the eye.

If the section of a moulding be concave, but in all other respects the same as the last, it is denominated a Cavetto. They are never employed in bases or capitals, but frequently in entablatures.

If the section of a moulding is partly concave and partly straight, and if the straight part be vertical and a tangent to the concave part, and if the concavity be equal or less than the quadrant of a circle, the moulding is denominated an Apophyge, Scape, Spring, or Conge: it is used in the Ionic and Corinthian orders for joining the bottom of the shaft to the base, as well as to connect the top of the fillet with the shaft under the astragal.

If the section be one part concave and the other convex, and so joined that they may have the same tangent, the moulding is named a Cymatium; but Vitruvius calls all crowning or upper members cymatiums, whether they resemble the one now described or not.

If the upper projecting part of the cymatium be a concave, it is called a Cima recta; they are generally the crowning membres of cornices, but are seldom found in other situations.

If the upper projecting part of the cymatium be convex, it is called a cima reversa, and is the smallest in any composition of mouldings, its office being to separate the larger members: it is seldom used as a crowning member of cornices, but is frequently employed with a small fillet over it, as the upper member of architraves, capitals, and imposts.

If the section of the moulding be the two sides of right angles, the one vertical, and the other of course horizontal, it is termed a *fillet, band*, or *corona*. A fillet is the smallest rectangular member in any composition of mouldings Its altitude is generally equal to its projection; its purpose is to separate two principal members, and it is used in all situations under such circumstances. The corona is the principal member of a cornice. The beam or facia is a principal member in an architrave as to height, but its projection is not more than that of a fillet.

Construction of Arches.—If the weights of the voussoirs in an arch are all equal, the arch of equilibration is what is termed a *Catenarian* curve, the same that a chain or cord of uniform thickness would assume, if hanging freely, the horizontal distance of the points of suspension being equal to the span of the arch, and the depth of the lowest point of the chain being equal to the greatest height of the arch.

If the figure of the chain were reversed, the joints being such that the force, which was a *pull* in the first situation, becomes a *thrust* in the second, the chain would support itself, and remain in *equilibrio*.

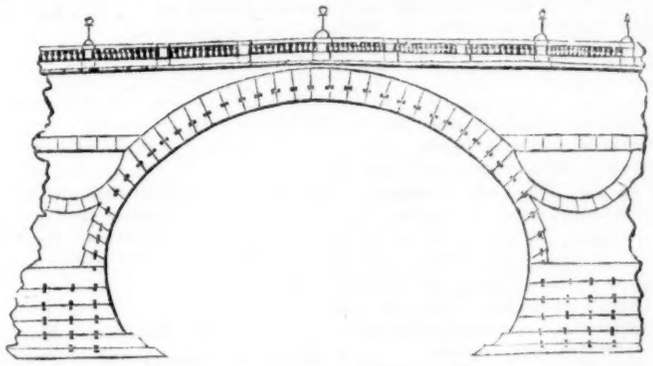
The *catenaria* is remarkable for this mechanical property. That a chain hanging in that curve has its centre of gravity *lower* than if it were disposed in any other line, its length continuing the same, and also the points from which it is suspended. Therefore, an arch constructed in this form has its centre of gravity the *highest* possible.

But the supposition of an arch resisting a weight, which acts only in a vertical direction, is by no means perfectly applicable to cases which generally occur in practice. The pressure of loose stones and earth, moistened as they frequently are by rain, is exerted very nearly in the same manner as the pressure of fluids, which act equally in all directions: and even if they were united into a mass, they would constitute a kind of wedge, and would thus produce a pressure of a similar nature, notwithstanding the precaution recommended by some authors, of making the surfaces of the arch-stones vertical and horizontal only. This precaution is, however, in all respects unnecessary, because the effect which it is intended to obviate is productive of no inconvenience, except that of exercising the skill of the architect. The effect of such a pressure only requires a greater curvature near the abutments, reducing the form nearly to that of an ellipsis, and allowing the arch to rise at first in a vertical direction.

A bridge must also be so calculated as to support itself without being in danger of falling by the defect of the lateral adhesion of its parts, and in order that it may in this respect be of equal strength throughout its depth at each point, must be proportional to the weight of the parts beyond it. This property particularly belongs to the curve denominated *logarithmic*, the length corresponding to the logarithm of the depth. If the strength were afforded by the arch stones only, this condition might be fulfilled by giving them the requisite thickness, independently of the general form of the arch: but the whole of the materials employed in the construction of the bridge must be considered as adding to the strength, and the magnitude of the adhesion as depending in a great measure on general outline.

We must examine in the next place what is the most advantageous form for supporting any weight which may occasionally be placed on the bridge, particularly at its weakest part, which is usually the middle. Supposing the depth at the summit of the arch at the abutments to be given, it may be reduced considerably, in the intermediate parts, without impairing the strength, and the outline may be composed of *parabolic arcs*, having their convexity turned towards each other. This remark also would be only applicable to the arch stones, if they afforded the whole strength of the bridge, but it must be extended in some measure to the whole of the materials forming it.

If, therefore, we combine together the curve best calculated for resisting the pressure of a fluid, which is nearly elliptical, the logarithmic, and the parabolic curves, allowing to each its due proportion of influence, we may estimate, from the comparison, which is the fittest form for an arch intended to support a road. And in general, whether the road be horizontal, or a little inclined, we may infer that an *ellipsis*, not differing much from a circle, is the best calculated to comply as much as possible with all the conditions, as represented by the above figure, which exhibits a view of the middle arch of Blackfriar's Bridge, London.



Value of Blood Horses.—Mr. J. C. Stevens has sold his horse *Medoc* for $10,000 to a gentleman from Kentucky. Not wishing to part with so favorite an animal, he asked a price that he thought left but little risk upon that score. But he was mistaken: the gentleman paid him the money, and walked off with the horse; and it is a little singular, that within twelve hours after, he had an offer of the same sum from a gentleman from Virginia, who came on to purchase him, and thought him cheap at that price. Double the sum obtained, however, would not have induced his owner, thorough sportsman as he is, to part with him, except upon the condition of his being withdrawn from the turf. He goes to Kentucky as a stud. *Medoc* is an *Eclipse* colt, out of *Young Maid of the Oaks*, and will be five years old next spring. His color is sorrel, in that and other particulars resembling his sire.—[N. Y. Amer.]

BIRDS.—A few days back, a Dorking cock and his numerous wives being assembled round a tub, sunk in the ground for ducks to bathe in, a piece of bread was flung in the middle of the water's surface to see what they would do to obtain it. At first they strutted round and round the tub, trying at different sides to reach it, but after many attempts, finding their endeavors unsuccessful, all retired from the spot except the cock and one of the hens. The latter, after eyeing the desired morsel for some time, and apparently considering how to get it, at length hit upon this ingenious expedient. She placed her beak down to the brink, sucked up the water, and thus formed a current on which the piece of bread floated towards her, though very slowly. The cock perceiving this ran to the opposite side, began to fan his wings, and ceased not until he had blown the bread within the reach of the hen.—[Field's Nat. Mag.]

REMARKS.—We can scarcely give credence to the above, although we find it republished in the London Horticultural Register. In the first place, we believe a hen sucks up but a very little water before she raises her head to swallow; and in the next, the object of the hen was to satisfy thirst, and not to produce a current in the water. The cock, too, often flaps his wings for exercise and air.

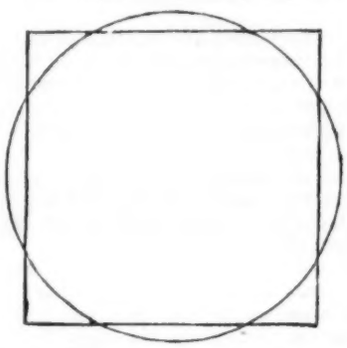
THE IVY NOT INJURIOUS TO TREES.—Ivy now begins to substitute its dark green leaves for the lighter colors of the deciduous trees which it climbs upon. It appears to be a vulgar prejudice that ivy kills the trees it clings to. If it rooted itself, as is erroneously supposed, in their bark, and fed on their juices, it might merit the accusation of a destroyer, but it derives its nourishment wholly from the ground, where it is rooted, and the supposed roots on the bark of trees are only tenacious fibrils or holdfasts to enable it to climb. The opinion of its injuring trees seems to have arisen (and very naturally too) from the fact that it prefers to climb up a dead or dying branch, and will not attach itself to very young wood at all.—[Notes of a Naturalist.]

TO PREVENT SNOW-WATER FROM PENETRATING BOOTS OR SHOES.—Take equal quantities of beeswax and mutton suet, and melt them together in an earthen pippin over a slow fire. Lay the mixture while hot on the boots and shoes, which ought to be made warm, also let them stand before the fire a short time for it to soak in, and then put them away until quite cold. When they are so, rub them dry with a piece of flannel, in order that you may not grease your blacking brushes. If you black them well before you put the mixture on, you will find them take the blacking much better afterwards.

DOMESTIC YEAST.—Persons who are in the habit of making domestic bread, cake, &c. can easily manufacture their own yeast, by attending to the following directions: Boil one pound of good flour, a quarter of a pound of brown sugar, and a little salt, in two gallons of water, for one hour. When milk-warm, bottle it and cork it close. It will be fit for use in twenty-four hours. One pint of the yeast will make eighteen pounds of bread.

INDELIBLE COLORING.—In impregnating, in an even manner, the surface of cloth with a solution of nitrate of silver, and after drying it immersing the cloth in a solution of hydrochlorate, or of chloride of lime, chloride of silver is formed, which adheres strongly to the fibre, and if afterwards the cloth is exposed to the light, it immediately acquires a bluish gray tint, very clear and agreeable, which resists the action of chlorine, ammonia, &c. In order that it may be perfectly uniform, the whole piece must receive the action of the sun's rays at the same time.—[M. Robiquet, Jour. de Pharm.]

MECHANICS IN CHINA.—It is said there are in China, 25,000 shoemakers; 15,000 weavers; 16,000 carpenters and cabinet-makers; and 7,000 lapidaries, or cutters of precious stones.



Mechanical Quadrature of the Circle. By WILLIAM BADDELEY. [From the London Mechanics' Magazine.]

SIR,—The accompanying diagram exhibits a mechanical quadrature of the circle effected by Mr. Heaton, which I believe to be quite original; the rule thereby obtained is sufficiently accurate for all practical purposes. From a piece of carefully rolled sheet brass was cut out a circle 1·9 inches diameter, and a square of 1·7 inches. On weighing them they were found to be of exactly the same weight, which proves that as each are of the same thickness, the surfaces must also be precisely similar. The rule, therefore, is that the square is to the circle as 17 is to 19. Mr. Heaton made a number of experiments before he hit upon the right measurement, which he has at length determined with as much accuracy as the case will admit of.

I am, sir, yours, very respectfully,
WILLIAM BADDELEY.

London, Aug. 19, 1833.

EXTINGUISHING FIRES BY STEAM.—On Thursday night an experiment, calculated to show the utility of steam in extinguishing fires, was exhibited at Mile End, Glasgow, on the premises of Mr. Clark. In a house fifteen feet high, fifteen feet and four corners, combustible materials were put in the room and centre, and set on fire, and allowed to burn till the flames reached a height of about nine or ten feet; steam was then admitted into the house, which extinguished the flames in less than two minutes, and on opening the door in a few minutes after, the burning was found to be completely extinguished.—[Scottish Guardian.]

[*From the Mechanics' Magazine.*]

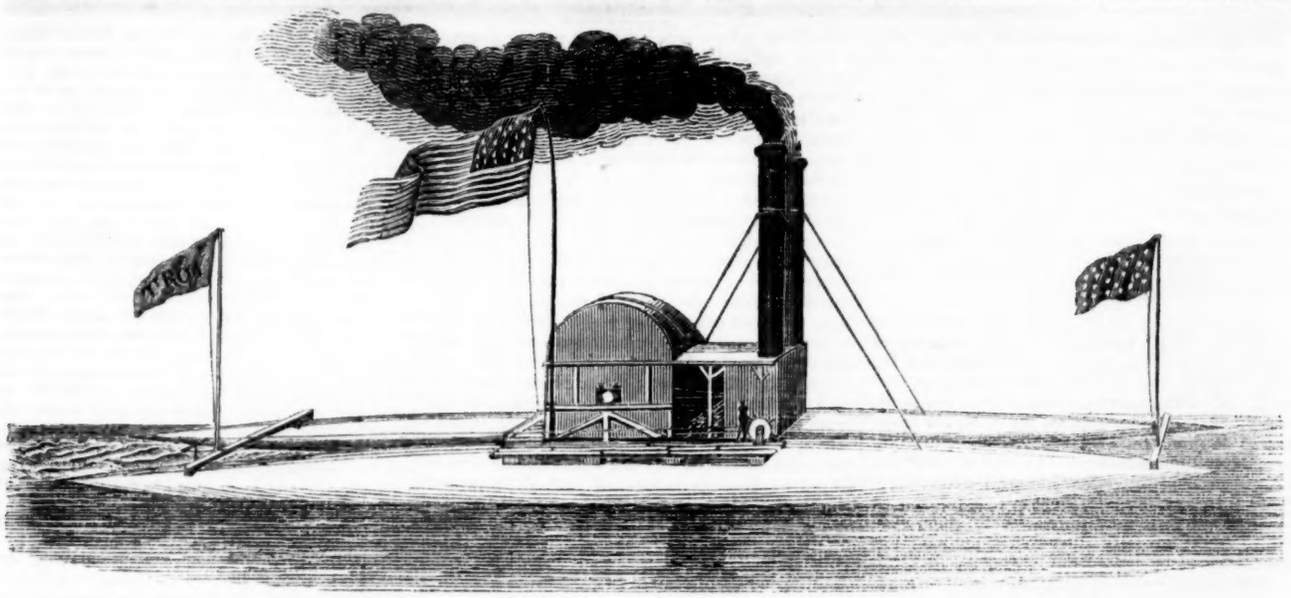
THE NEW ERA OF STEAM POWER.—In our first volume, at page 118, we inserted a short article on the probable application of steam power to various purposes during the year, which is now nearly brought to a close. We here state that "every day brings to light some new form in which its irresistible energies may be employed. Ten years ago the idea of substituting a steam engine for a horse, as propelling power on a turnpike road, would have been thought chimerical. * * * We shall not be surprized to find it, before the year is out, employed to extinguish fires, to blast rocks, or in excavating the earth for canals. No man can set bounds to its utility, or the modes of its application." Since then we have received various reports of the success of steam carriages on common roads, and as a proof of their being in practical operation, we refer our readers to an account, (taken from the London Repertory of Arts for November,) of their performance on one of the most crowded roads in the vicinity of that metropolis; it has also been used in extinguishing fires, as will be seen by reference to page 329. Inventions and suggestions of importance, as connected with steam power, have within the last few weeks so multiplied upon us that we have resolved to give, in as condensed a form as possible, all the information we have received in this article, and as one of the most important, we shall commence with an account of Mr. Burden's new steamboat, an invention which we hesitate not to say is of the first importance.

On the 13th of December, we made an excursion up the North river as far as Yonkers, between twenty and twenty-one miles from the foot of Courtland street, on the foundation of it as represented in the drawing annexed. In its passage out, in consequence of some parts of the machinery being disarranged, no attempt was made to obtain a greater speed than ordinary steamboats. When at Yonkers, all was ready to put the principle of the movement to the test, and the result was, that in one hour and one minute we arrived at Courtland street.

Our esteemed correspondent, MR. BLYDENBURGH, of Lansingburgh, who has had frequent opportunity of witnessing the construction of it, has forwarded a descripion of its formation. This description has been submitted to Mr. Burden, who, after making some trivial alterations, has stated that he has no objection that it should be made public—*that he considers it a correct one:* it is, therefore, subjoined. It is evident that it is capable of performing all that its inventor has promised, and its importance to navigation cannot but be obvious to every one. Mr. Blydenburgh thus writes:

The principle on which the invention is founded consists in placing two hollow parabolic spindles parallel to each other, at sufficient distance to admit a wheel between them, and by connecting them together by strong timbers across the top, both before and aft the wheel, in such manner as not only to give the necessary strength, but also to serve as a necessary platform whereon to erect the necessary superstructure, both for the machinery and for the accommodation of passengers. In his present boat the trunks are 300 feet long, and 8 feet diameter in the centre, tapering in a regular parabolic curve, to a point at each end. They are placed, as above stated, parallel to each other, and I believe 16 feet inside and about 30 feet clear. The wheel between them is 15 feet diameter, and 15 feet in length. The buckets are so arranged, as to number and situation, as to prevent the jolting motion felt in the other boats as the buckets strike the water.

To ascertain the buoyancy of this boat, or the burthen she will carry, I take the common method to measure a parabolic spindle—thus:



8×8×7854=50·2656 superficial contents at centre; 300×8−15×50·2656=8042·4960 cubic feet, solid contents, say 8042·5 cubic feet, ×62·5=49863·5 pounds weight of water displaced by each spindle, equal to 222 tons 12 cwt. Then the two spindles will require 222½ tons, including their own weight, to sink them to their centre; in which case they would only draw 4 feet of water. Allow, then, the boat and machinery to weigh 70 tons, which I think is not below the truth, and allow 500 passengers to weigh 37½ tons, then the boat, machinery, and passengers will weigh 107½, and will require 115* tons more to make it draw 4 feet of water.

If the above calculations be true, and they cannot be far out of the way, the boat, with any reasonable load, will never draw 4 feet, and seldom so much.

With respect to her speed, the time and room will not admit of mathematical calculations, though they could easily be made; and Mr. B., who appears to me to be a man of scientific as well as practical knowledge, has doubtless made them; but I am confident, from her great length, narrow breadth, and light draught, she will equal in her motion the most sanguine expectations. I am confident, that with a little practice to get her waywise, she will make the trip to New-York, a distance of 160 miles, and back, allowing a reasonable stop there, not only by sunshine, but an easy day's work.

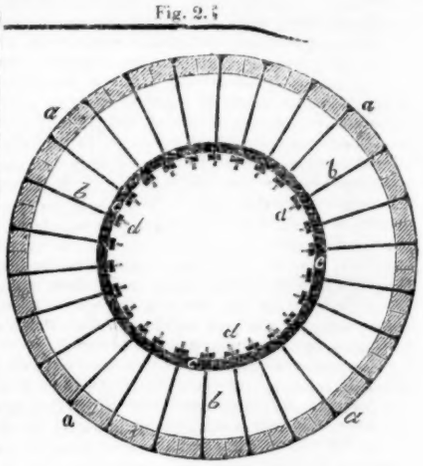
It has been said she cannot live in rough water. On this point, I have no hesitation in saying that the same weight of materials could not be combined to form a vessel in any other shape with greater, if with equal strength; and one peculiar advantage it possesses over any other steamboat in rough water is, that her whole weight is borne on the outside of her width, while that of other steamboats is in a narrow compass in the middle: while, therefore, the common boat in a rolling sea is liable to overset, or displace her machinery by rolling, and will almost constantly have one wheel out of water, Mr. B.'s boat, standing upon a broad foundation, can roll but little, and the wheel, by being in the middle will of course maintain an even depth in the water, and the swell not consequently interrupt her speed.

On the whole, from the opinion I entertain of the talents of Mr. Burden, and from what I have seen of his boat, if the invention does not mark a new era in the history of locomotion, as respects rapid and safe travelling, I will willingly submit to be branded as a false prophet.

Our readers will have observed that the construction of this boat is on a principle that can scarcely be misunderstood by any one. Every person knows that a mass moves more easily through the water endwise than sidewise; and as the editor of the Journal of Commerce very justly observes, "Mr. Burden has carried the principle to its *ne plus*; instead of building a boat so narrow that she could hardly be made to stand erect, he has made a *pair* of boats, and so being relieved from all danger of capsizing, he has been able to elongate them to his heart's content." The rudder, which is placed immediately behind the flag with the word TROY on it, is only a plate of iron about 6 feet long, and about 5 inches wide, and is governed by the motion of a steering wheel, placed parallel with the boiler, on the same trunk to which it is connected by ropes, as will be seen in the engraving: it is similar to a common steering wheel, and as the chief weight of the parabolic spindles or trunks is in the centre, it causes it to revolve as on a pivot. This may be illustrated by placing a common rolling pin used in making pastry, of the same form, on a table, and turning it; that will form a complete circle, and on that principle, this boat turns, whereas all other vessels turn on their stern.

Fig. 2 is a cross section of the internal part of one of the trunks: *a a a a*, the staves, 26 in number, 3½ inches thick, to each of which is

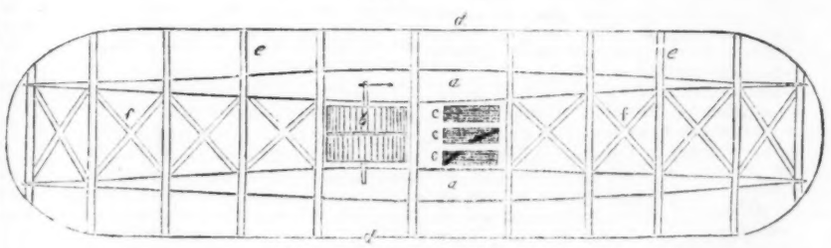
Fig. 2.



attached an iron bolt, *b b b*, 26 inches in length, passing through the staves, and countersunk on the outside of them: these bolts are fastened to an iron ring, *e*, by means of nuts, *d d d*, screwed on the inside; so that the tighter the nut is screwed, the more compact it makes those staves immediately opposite. Sufficient room is left in the centre for a man to enter and pass fore and aft, to turn the nuts, if necessary.

Fig. 3 shows the plan of connecting these

Fig. 3.



two spindles or trunks, upon which the decks are to be built. *a a*, the trunks or spindles; *b*, the water wheel; *c c c*, the boilers; *c c*, the beams which connect it with the outside guard *d*; *f f*, the braces.

We think it right to state another fact in connection with the advantages which we have enumerated; and that is in her complete exemption from jarring or vibration while under way. The passengers in this boat could easily imagine themselves upon terra firma, were it not for her great velocity.

It is, we understand, to be named the EMMA, OF TROY, in respect, on the part of the inventor, to his amiable and intelligent partner for life.

*Mr. Burden states that from 180 to 200 tons burthen will occasion a draught of 4 feet.

Hitherto the chief obstacle of going long voyages by sea in steamboats, has been the difficulty of carrying sufficient fuel. That obstacle is in a great measure obviated by a discovery of Mr. Rutter, an engineer in England, for generating heat by water, to which we have before alluded at pages 117 and 182, and which we think still we shall be able to prove was first discovered by an American citizen. At present, we shall copy Mr. Rutter's account from the London Mechanics' Magazine.

"My invention of an improved process for generating heat, applicable to the heating of boilers and retorts, and to other purposes for which heat is required, consists in the employment of bituminous, oleaginous, resinous, waxy, or fatty substances, in a liquid state, and in conjunction with water as fuel, in manner hereinafter described. I carry my said improved process into effect in manner following, that is to say, by allowing or causing one or more of the said bituminous, oleaginous, resinous, waxy, or fatty substances, as coal tar, for instance, to flow from a cistern or other vessel suitably placed, through a pipe or other convenient channel, into a spout or funnel communicating with the interior of an enclosed fire-place or furnace, and at the same time allowing or causing water to flow from a cistern or vessel, placed in a suitable or convenient situation, through another pipe, or other convenient channel, into the beforementioned spout or funnel, in which spout or funnel they are allowed or caused to flow or drop simultaneously upon a fire previously kindled and burning within the before-mentioned inclosed fire-place or furnace, subject to the regulations hereinafter mentioned or described. It is not essential that the coal tar, or other of the before-mentioned substances, should first come into contact with the water in the spout which communicates with the interior of the enclosed fire-place or furnace. Indeed, I rather prefer that they should first come in contact with each other in a funnel at some little distance from the furnace, and from thence be allowed to flow together, through a convenient channel, to the spout by which they are admitted into the interior of the fire-place or furnace; but the tar or other substance, and the water, should be in contact prior to or at their entrance into the fire-place or furnace, and being so in contact should fall simultaneously upon the fire so burning within the fire-place or furnace; and if the fire-place or furnace be large, two or more of the spouts or channels for introducing the coal tar, or other substances, and water together, may be adapted to such fire-place or furnace in such manner and at such distances from each other as may be found most convenient. The stream of coal tar, or other of the before-mentioned substances, and of water respectively, is or may be regulated by means of stop-cocks or valves, either in or attached to the cistern or other vessel, or in any of the pipes or channels before-mentioned. The spout or other channel through which the coal tar, or other of the before-mentioned substances, and the water, are introduced into the interior of the inclosed fire-place or furnace, should be left open, so that a supply of atmospheric air may thereby be admitted to the said inclosed fire-place or furnace, care being taken that too large a supply of atmospheric air be not admitted. Although I prefer the heating, inflaming, and decomposing surface of a fire, burning within an inclosed fire-place or furnace, as aforesaid, in carrying my said improved process into effect, as most favorable to the complete and effectual combustion of the coal tar, or other of the before-mentioned substances, in conjunction with water as aforesaid, yet the same is not absolutely essential to the said process, for the combustion of the coal tar, or other of the before-mentioned substances, in conjunction with water, may be effected in a furnace, oven, or other close vessel, previously heated, and afterwards kept at a proper degree of heat, either by heat disengaged within the said furnace, oven, or close vessel, or by heat being applied externally, or in any other way that shall be found most convenient. It is not essential that the water employed in my said improved process should be fresh or pure water, for sea water and impure water, such as the bilge water in ships, and the ammoniacal liquor in gas works, will answer the purpose. The respective quantities and properties of coal tar, or other of the before-mentioned substances, and of water, proper to be admitted or introduced into the inclosed fire-place or furnace, oven, or other close vessel, will be found to vary according to circumstances and the materials used. The proportions of coal tar and water, which I have found productive of a good result, are one gallon of coal tar, to be be used simultaneously with one gallon and a half of water, and these qualities should be so regulated as not to fall upon the fire or other heated surface, as before-mentioned, in much less than two or three hours; but the proper proportions to be used may be ascertained by observing the interior appearance of the said inclosed fire-place or furnace, oven, or other close vessel, (which may be done at or through one or more of the spouts or other convenient channels provided for the introduction of the coal tar or other material and the water, or at or through one or more convenient apertures made for the purpose); for if water be in excess the flame will be weakened or extinguished; or if tar, or other of the before-mentioned substances, be in excess, then the flame will be obscured by smoke."

Mr. Rutter does not lay any claim to the apparatus or machinery employed in the process, but limits his patent right to "the mode or process of generating heat, by subjecting bituminous, oleaginous, resinous, waxy, and fatty substances, or a mixture of two or more such substances, in a liquid state, in conjunction with water, ignition, combustion, and decomposition, in the manner before described."

In the London Mechanics' Magazine of October 5th we find the following further particulars:

As I find that the question I recently proposed to your valuable correspondent, Mr. Rutter, as to his new process, is inadvertently so worded as to be liable to misconstruction, I take the earliest opportunity to desire its correction.

The process in question is not for "making gas" only, but for *generating heat* for all the purposes to which that powerful agent is applicable, as must, indeed, have been by this time gathered from the articles on the subject in the Mechanics' Magazine. Gas is produced, it is true, in the first instance, from the combustion of the tar and the water, but it is instantaneously converted into flame, to be used *in any case where heat is required*—whether the manufacture of gas for illumination (to which it has been applied at Salisbury), the production of steam for numberless purposes of manufactures and navigation, or a thousand other equally important uses. Gaseous matter has, I understand, been before obtained from water to some extent, but only by means of processes too expensive and too complicated to be of general utility. I remain, Sir, yours respectfully, F. H.

London, Oct. 1, 1833.

From the same Magazine of October 19th, we also make the two following extracts:

The notices of Mr. Rutter's new process for generating heat have greatly interested me, and having some practical knowledge of the great difficulty of obtaining sufficient "stowage" for the fuel in steam navigation, without encroaching on the space required for other purposes, and disturbing the trim of the vessel too much, I am disposed to think that Mr. Rutter's discovery will do much towards changing "the face of the world," and to believe that the period is "now fast approaching, when communication by steam may be established with every part of the globe."

The economy of this plan, in *weight* and *cost*, will appear the greater, if we compare it with the expenditure on the present system. According to the data given by your correspondent, in No. 529, the account will stand as follows:

To produce an effect equal to 120 lbs. of Newcastle coal, will require 15 lbs. coal tar, say 20 lbs. water, and 25 lbs. coke, in all 60 lbs. But as water may be supplied from alongside as wanted, deduct 20, leaving 40 lbs. of fuel, which, on Mr. Rutter's principle, would produce an effect equal to 120 lbs. Newcastle coal, or three times the weight of the fuel at present used. If Mr. Rutter's data *only* approximate to the exact proportions, we cannot fail to be struck with the extravagant waste of fuel upon the present system. Every commander of a steam-vessel knows, or ought to know, that the ashes, *and cinders too*, which are thrown overboard, are not nearly equal to half the weight of coal consumed in a given time. From what has passed under my own observation, when in command of a steam-vessel, I am inclined to think that they do not exceed, in ordinary cases, 10 per cent. of the fuel consumed; and if so, there is a difference of 48 lbs. to be accounted for out of every 120 lbs. of coals consumed. Where this goes we can be at no loss to imagine, when we observe the immense volume of smoke which marks the course of a steamer at sea; even with the most careful stoking, a vast quantity of inflammable matter passes off unconsumed. Deducting the actual loss in this way, it appears not improbable it would be found that the difference of the total weight of the inflammable matters, efficiently *applied to the generation of steam*, would not be so great as it appears to be at first sight.

From the preceding statement it appears, that there is a balance in favor of Mr. Rutter's method of generating heat of 200 per cent., as compared with the weight of Newcastle coal, and that by loading a vessel with the same weight of fuel, to be consumed on this plan, she would be able to keep the sea three times as long as at present.

Another, and by no means unimportant advantage of Mr. Rutter's plan, is, that the material required being fluid, and withal of less specific gravity than water, it may be advantageously stored in tanks fitted to the vessel, in those spaces which are now comparatively useless, and may be so disposed as to serve in lieu of ballast, and thus render steamers less crank than they now are. As each tank is emptied it may be filled with water, so as to preserve the same trim during the voyage, which is by no means an unimportant consideration, as it is well known that swift vessels are much sooner put out of trim than others. The absence of the large funnel, which is now required, would be a great advantage, both in velocity and comfort in a seaway.

With regard to the comparative economy of Mr. Rutter's method of generating heat, it obviously depends upon the cost at which "the bituminous, oleaginous, resinous, waxy, and fatty substances, in a fluid state," can be procured.

Suppose that coal tar is used. This article could at one time, and may now, probably, be obtained for 1*d.* per gallon at the works, or even less. Taking it at 1½*d.* per gallon, and coke at 28*s.* per chaldron, weighing (say) 18 cwt., then the account will stand thus:

1½ gallons tar 1½*d.* 25 lbs. coke (say = ¼ bush.) 4½*d* —6*d.* cost of fuel on Mr. Rutter's plan, equal in effect to consumption of 120 lbs. Newcastle coal on the present system:

120 lbs. Newcastle coal = say 1¼ bush. at 9*d.* per bush., would cost 13½*d.*, or 125 per cent. more.

Something must be allowed for the expense of the apparatus for injecting the inflammable liquids into the fire, &c.; but even here an allowance should be made, on the other hand, for the increased room which would be available to other purposes than the stowage of fuel, for which it is now required—for the saving of the cost of the funnel—and also for the reduced expense of repairs to the hull of the vessel, in consequence of not being subject to those irregular strains in a gale of wind to which steamers are now liable.

I have no personal knowledge of Mr. Rutter, but I could not forbear addressing the foregoing observations to you upon the subject of his invention, which I find is already quibbled about, nay, by some decried, on account of its very simplicity! Let them remember the tale of Columbus and the Egg, and try to discover its application in the present case.

I am, &c. GEORGE BAYLEY

Ipswich, Oct. 3, 1833.

I perceive by your last notice, that Mr. Rutter is preparing for publication a work on the application of his new principle, and I beg to assure him that he has my sincere wishes for the complete success of his patent, &c.

It occurred to me, that about fourteen years since, in consequence of a paragraph which had then met my eye, I had been induced to make the following experiment: About equal portions of common tar and water were put into a half-pint glass retort, after

which the orifice of the beak was reduced, by drawing out at the table blowpipe, to about one-eighth of an inch diameter. The retort being fixed over an argand lamp, the apparatus was taken into my garden on a dark night, and the contents of the retort brought to a state of brisk ebullition. As soon as vapor issued with rapidity, a light was applied, and in an instant I beheld a jet of flame eight or nine inches in length, constituting a brilliant firework, the intense heat of which was found capable of melting several refractory mineral substances. I lay no claim to originality in this little experiment, which is precisely the same in principle as Mr. Rutter's method, and this the following extract, which gave rise to my experiment, will show:

"American Water-Burner.—An apparatus, called the American Water-Burner, has been invented by Mr. Morey, of New-Hampshire. It is a rough blowpipe, but is applicable in many cases in place of a furnace. Tar is intimately mixed with steam, and made to issue from a small jet, in the manner of an eolipile, and the stream of matter being ignited, produces a flame of great size and intensity. It appears that the water is partly decomposed towards the middle of the jet, and that the heat is thus increased by increasing the quantity of active agents; but, whatever the exact effect, the water is found to be useful in preventing the formation of smoke, and increasing the combustion."—[New Monthly Magazine, April, 1819.]

Perhaps, Mr. Editor, you will indulge me in a few more remarks. In the autumn of 1827, a scientific friend and myself succeeded in beautifully illuminating a very large room, then used as our laboratory, with gas obtained from the decomposition of resin; and being at the same time occupied with the oxydrogen blowpipe, in producing intense light by means of lime and other substances, it occurred to us that the light thus furnished would prove admirably adapted to the purposes of illuminating objects usually exhibited by the solar microscope. In the course of a few weeks, subsequently, the illuminating power of resin gas, and the principle of applying the light of lime to the microscope, were practically demonstrated in a lecture before the Canterbury Philosophical Institution. I believe it was early in the following year that I was informed a patent had been granted for lighting a town on the continent with "resin gas," and every body knows that, during the present year, the "gas microscope" has been brought out as one of the popular exhibitions of the metropolis.

Now I feel convinced, Mr. Editor, that both these plans were originated and carried into effect independent of any thing made public by me; and just as well am I satisfied, notwithstanding the extract previously given, that the principle of generating heat, now made known, is as purely original with Mr. Rutter. Coincidences of this kind have frequently happened, and the more men are taught to think for themselves, the more frequently they will happen, which, after all, is nothing more than another proof of the value of scientific acquirements. Mr. Rutter, I feel persuaded, will not mistrust my motives in offering these observations to his notice: had I not done so, it is very probable some one else would shortly have made him acquainted with the "American Water Burner," and perhaps might unjustly accuse him of plagiarism at the same time. I am, Sir, very truly yours,

W. H. Weekes.

Sandwich, October 18, 1833.

In conclusion, we beg to assure our subscribers that we have sent to the Patent Office at Washington for drawings and specifications of the "American Water-Burner," which we fully expect will appear in our January number.

We have much to say on "Steam Travelling on Common Roads," but must defer it until our next.

Journeys from London to Greenwich.—In our last number we had the pleasure of giving an account of the first business-like journey performed by a steam-carriage on common roads; and we cannot but feel gratified at the demand which the accuracy of our information has produced.

It was very generally believed, particularly amongst horse-coach proprietors, that the public would be prejudiced against this new mode of conveyance; and in entering into arrangements for running steam-carriages, this objection has been raised as a reason for reducing the premium required by the patentees, it being stated that steam-carriages would run for a length of time at a loss, before the public would venture regularly to travel on common roads by steam. Sir Charles Dance, at the time of running between Gloucester and Cheltenham, had never discovered that such a prejudice existed, but that the contrary was really the case, every one appearing desirous of becoming a passenger. This point has however been further set at rest, by the same carriage, (which performed the journey from London to Brighton and back), having run for eight successive days from Wellington street, over Waterloo Bridge, to Greenwich, three times a-day, starting regularly at eleven, half-past twelve, and two o'clock, each day, a distance, in the whole, of about 250 miles, at an average running of ten miles per hour.

In order to call forth as little opposition as possible, from the coachmen and their attendant imps, at the same time to show that the public mind is by no means against the introduction of steam-carriages, Sir Charles Dance determined not to run for the ordinary charge, but the coach was advertised to run for two shillings and sixpence each person, to or from Greenwich, or the sum of four shillings to those who were desirous of going and returning: by such a course it was evident that curiosity would be the principal motive for going with the carriage. We are informed that, on an average, fourteen persons accompanied the carriage each trip. Such has been the interest displayed, that crowds of persons lined the road; and at either end of the journey so dense were the crowds, that, but for the command over the engine and the accuracy of the driving, some serious accident must inevitably have occurred. In some of the journeys, the steam-coach was accompanied by many of our scientific men, amongst others Mr. Telford, Mr. Macneill, and others of our best engineers, who expressed themselves so much gratified with the success of Sir Charles Dance, that they have determined on running the carriage a journey between London and Birmingham, the more fully to demonstrate the practicability of using the power of steam on common roads; and the carriage has been taken off the Greenwich road for this purpose.

We have very carefully examined the steam-carriage, and observed the ease of its running, and believe, that when Messrs. Maudsly and Field shall have completed a carriage, it may be expected to run on an average of fifteen miles an hour, with light weight. It should be understood, that the present carriage was not built by these talented engineers, but that the boiler only is of their manufacture; nor can they venture to use its full power on the engines, as many parts of the carriage are not equal to bear the strain, whilst other parts are too strong and heavy; it may therefore be said, that the carriage, in having performed so much under all the circumstances, has the more positively proved the possibility of bringing this mode of conveyance into general application. We hope, in our next, to lay before our readers the result of the journey to Birmingham. We would here observe, that the boiler, on the lightness and strength of which every thing depends, has, after running several hundred miles, proved itself most effective, and may be considered as a very successful invention.

The Brighton road was divided into five stages of rather more than ten miles, at which places the carriage took in coke and water; in running on the Greenwich road the carriage took in for each journey a small quantity of coke and water, sufficient for the five miles run, the two stations for this purpose being one in the Waterloo road and the other at Greenwich. The quantity of coke consumed during the whole time that the carriage has been running with the present boiler, averages nearly half a bushel per mile.—[Repertory of Arts for November.]

After this article was in type, we received the London Times of 9th November, from which we extract the following curious account of a new and important invention by Capt. Ericsson, and although its intention is to *supercede* steam power, we know no place more suitable to introduce it. The subject appears to have attracted considerable attention in England, and it will probably, if it should succeed according to the expectations of the inventor, produce important changes in the propelling power for machinery, travelling, &c.

We shall look for further accounts upon the subject with much interest, and lay them, when they are received, promptly before the public.

Ericsson's Caloric Engine.—Various attempts have been made to construct engines founded on the principle of the expansion of atmospheric air by heat, but these attempts have still remained without practical success. The caloric engine invented by Capt. Ericsson, a large working model of which we have seen in vigorous operation, seems to promise results of a very different kind. Air and steam must now engage in a desperate and probably a deadly struggle for the mastery. If the sanguine, and we think not unreasonable, hopes of the inventor be realized, steam has seen its best days.

The principle of the engine is founded on the well known property of fluids, that they transmit their pressure equally in all directions. It consists of two cylinders of unequal diameters, the area of the pistons of the one being double that of the other. These cylinders are connected together by means of a series of pipes, called a regenerator. If air be condensed in these cylinders, it is obvious that the superior pressure exerted on the piston of the large cylinder will vanquish the pressure on the small one, and motion will take place till the larger piston has reached the top of the cylinder, whilst the small one has been pushed to the bottom. Here all motion would cease, if heated condensed air were not allowed to enter above the large piston, and below the small one, so as to depress the large one to the bottom of the cylinder, and raise the smaller one to the top. But this being done by sliding valves, exactly as in the steam engine, the motion is constantly kept up. On this principle, then, we could obviously have an air engine, which would perform its operations by the sudden heating and cooling of condensed atmospheric air. But this is not the principle which distinguishes the caloric engine from others of the same class. The marked difference lies in this—that the same heat is made to circulate through the engine and perform the same duty over and over again, instead of being thrown into a cold condenser or into the atmosphere as so much waste fuel.

The regenerator consists of a number of pipes, having numerous discs of metal placed within them, to make the air circulate in eddies, and either deposite its heat in the pipes, or receive it from them, according to the difference of temperature. These pipes are inclosed in a long cylinder of sheet iron, which has also discs of metal so arranged that the air, passing along the outside of the pipes, may also travel in a circuitous route, and deposit its heat, or receive it, according to circumstances.

The heated air, after having done its duty in the large cylinder, is made to circulate through the regenerator, and deposit a very large quantity of its caloric before it reaches the cold cylinder. The cold air from the small cylinder is at the same time passing along the interior of the pipes to the tubes above the furnace, and is thus carrying back the *same* caloric to do the same work over again. But though we have only mentioned atmospheric air as the fluid actually employed, it is obvious that any other fluid, whether aeriform or liquid, may be used in the same manner. But a simple statement of numerical facts, furnished us by the engineer himself, will be of more value in turning the attention of the public to this invention than any general observations which we can possibly make. The engine actually constructed has two cylinders of 18 inches stroke each, the one being 14 inches in diameter, the other 10 1-4 inches. The working pressure is 35 lbs. above that of the atmosphere. The fly-wheel performs 56 revolutions in a minute. The break-wheel is two feet in diameter, and loaded with a weight of 5,200 lbs. The power of the engine is calculated to be equal to five horses. The regenerator has seven tubes about seven feet long and two inches diameter. The engine requires only 2 lbs. of coal per hour for the power of one horse, and the whole heat which is actually lost out of this quantity, or not returned by the regenerator, is only 3 lbs. per hour; so that the other parts are lost by radiation, &c., which may be much diminished in an engine on a larger scale, and by surrounding certain parts by imperfect conductors.

THE HUNTING HORSE.—All creatures, at times, take pleasure in exerting their strength; but this is no excuse for urging them beyond their powers.

"A horse that had a short time before been severely fired on three legs, and was placed in a loose box, with the door four feet closed, and an aperture over it little more than three feet square, and standing himself nearly sixteen hands, and master of fifteen stone, hearing the cheering of the huntsmen, and the cry of the dogs, at no great distance, sprang through the aperture without leaving a single mark on the bottom, the top, or the sides.

"Then if the horse be thus ready to exert himself for our pleasure, and pleasure alone is here the object, it is indefensible and brutal to urge him beyond his own natural ardor, so severely as we sometimes do, and even until nature is quite exhausted. We do not often hear of a "hard day," without being likewise informed that one or more horses either died in the field, or scarcely reached home before they expired. Some have been thoughtless and cruel enough to kill two horses in one day. One of the severest chaces on record was by the king's stag hounds. There was an interrupted burst of four hours and twenty minutes. One horse dropped dead in the field, another died before he could reach the stable, and seven more within a week afterwards.

"A favorite hunter fell after a long burst, and lay stretched out, convulsed, and apparently dying. His master procured a bottle of good sherry from the house of a neighboring friend, and poured it down the animal's throat. The horse immediately began to revive, soon after got up, walked home, and gradually recovered. The sportsman may not always be able to get this, but he may obtain a cordial ball from the nearest farrier, or he may beg a little ginger from some good house-wife, and mix it with warm ale, or he may give the ale alone, or strengthened with a little rum or gin."

GALLOWAYS AND PONIES.—A horse between 13 and 14 hands in height is called a galloway, from a beautiful breed of little horses once found in the south of Scotland on the shore of the Solway firth, but now sadly degenerated and almost lost, from the attempts of the farmers to obtain a larger kind and better adapted for the purposes of agriculture. There is a tradition in that country that the breed is of Spanish extraction, some horses having escaped from one of the vessels of the grand Armada, which was wrecked on the neighboring coast. This district, however, so early as the time of Edward I, supplied that monarch with a great number of horses.

Dr. Anderson thus describes the galloway:

"There was once a breed of small elegant horses in Scotland, similar to those of Iceland and Sweden, and which were known by the name of galloways, the best of which sometimes reached the height of 14 hands and a half. One of this description I possessed, it having been bought for my use when a boy. In point of elegance of shape it was a perfect picture, and in disposition was gentle and compliant. It moved almost with a wish, and never tired. I rode this little creature for 25 years, and twice in that time I rode a hundred and fifty miles at a stretch, without stopping, except to bait, and that not for above an hour at a time. It came in at the last stage with as much ease and alacrity as it travelled the first. I could have undertaken to have performed on this beast, when it was in its prime, 60 miles per day, for a twelvemonth running, without any extraordinary exertion."

A galloway, in point of size, whether of Scotch origin or not we are uncertain, performed, about the year 1814, a greater feat than Dr. Anderson's favorite. It started from London with the Exeter Mail, and, notwithstanding the numerous changes of horses and the rapid driving of that vehicle, it arrived at Exeter (172 miles) a quarter of an hour before the mail. We saw him about a twelvemonth afterwards, wind-galled, spavined, ring-boned, and a lamentable picture of the ingratitude of some human brutes towards a willing and faithful servant.

In 1754, Mr. Corker's galloway went 100 miles a day for three successive days, over the Newmarket course, and without the slightest distress.

A galloway belonging to Mr. Sinclair, of Kirby Lonsdale, performed at Carlisle the extraordinary feat of 1000 miles in 1000 hours.

Many of the galloways now in use are procured either from Wales or the New Forest, but they have materially diminished in number; there are scarcely sufficient to supply even the neighboring districts, and they are still more materially deteriorated in form and value. Both the Welch and the Hampshire galloways and ponies claim, however, some noble blood.—[Library of Useful Knowledge.]

INCREASE OF BEES.—The recent improvements in preserving bees will probably produce very great additions of honey, at a much cheaper rate. We still import honey from the Havana. The following we extract.

"It is not to be expected that many will attend to bee-husbandry merely for the sake of pleasure, but profit may induce others to follow that employment during their leisure hours. Often has the industrious laborer or mechanic been relieved from embarrassed circumstances, by the toil and labor of a swarm of bees, when he could avail himself of no other mode of relief. Not only are bees of immediate profit to their owners, but were they encouraged to the extent of which the pasture of the United Kingdom would permit, they might become even a source of national wealth. It is estimated by persons of learning, that the pasture of Scotland could maintain as many bees as would, on an average, produce 4,000,000 pints of honey, and 1,000,000 pounds of wax. Were this quantity tripled for England and Ireland, the produce of the empire would be 12,000,000 pints of honey, and 3,000,000 pounds of wax, annually. The income that would thus arise from honey, at the very moderate price of 5s. per pint, would amount to £3,000,000 sterling; and the wax, at 1s. 6d. per pound, would produce £2,225,000 sterling, affording, in round numbers, a total of £3,225,000 annually. The rearing of the bees must, therefore, appear to be an object worthy of the consideration of all who feel an interest in the welfare of their country. As there are few concerns more profitable than bees, in favorable seasons, considering the small expense that attends them, I humbly beg leave to lay before my readers the following estimate. Suppose a person to commence with only two hives, which may cost £3 10s. sterling, and allowing each hive, on an average, only to double its number annually, they would increase as follows in a period of ten years—

1st year, 2 hives; 2d, 4 do.; 3d, 8 do.; 4th, 16 do.; 5th, 32 do.; 6th, 64 do.; 7th, 128 do.; 8th, 256 do.; 9th, 512 do.; 10th, 1024 do.

At this rate, two hives would produce one thousand and twenty-four swarms in the period of ten years, which, at a very moderate calculation, would be worth £1 15s. sterling, each, so that there would be a clear profit of £1,792 sterling, for a little attention to the rearing and proper management of the bees, allowing the second and third swarms to pay for the hives, stools, labor, and incidental losses. It may be supposed by the above estimate that the seasons are favorable, but allowing 50 hives to fail from various causes, there would still remain £1,700 10s. sterling of clear profit. The years 1824 and 1825 were very favorable for bees, the latter was remarkably so. Almost every hive that year swarmed once, many of them twice, and a few even three times. When the store was collected, they weighed from 25 to 40 pounds each hive. Notwithstanding, I read in the public papers that honey to the value of £240,000 sterling had been imported into Great Britain in the course of this same year, 1825; a most extraordinary sum, and one which in my humble opinion might have been easily saved to the nation, if a stricter attention had been paid to the proper encouragement of our own bees.—[The Bee Garden.]

GARDENS OF SHIPS.—To sow in the temperate zone and reap between the tropics, is a somewhat singular thing. Yet it is constantly done. For our great East India ships, in imitation of the Dutch, who first introduced the practice, have little salad gardens in flat wooden boxes on their poops, where the seed, acted upon by a heat increasing daily, shoots up in a surprizingly rapid manner. In these gardens the number of crops in the year are more numerous than in any spot on earth, for the gardeners, if so minded, can command almost any temperature.

SKINLESS OATS.—At the meeting of the Warwickshire Agricultural Society, a specimen of the *Avenaica Farina*, or skinless oat, was produced by the Rev. Mr. Knott, which had been plucked that morning out of a piece of ground belonging to that gentleman, at Wormleighton. It was produced from seed furnished to him from Mr. Trucker, of Heanton Punchardon, near Barnstaple, Devonshire. According to the account furnished to us by that gentleman, it was grown in the season of 1830, for the first time it was ever produced in Great Britain, by Thomas Derenzy, Esq. of Clebemon Hall, who obtained the seed through a friend of his at Rotterdam, whether it was imported from Shantag, a remote district in China, and was quite unknown to Europeans till within these three years. The advantages which this extraordinary and valuable grain possesses over all other kinds of oats are numerous, viz.: When thrashed from the sheaf, it is exactly like oatmeal, and it is fit for immediate use for culinary purposes, and every other sort which oatmeal is consumed for, the grain being quite free from every particle of rind or husk. The flavor is delicious, and it contains much more farinaceous matter. There is, of course, considerable saving of oats, and expense of kiln drying, sifting, &c. &c.; and one peck of it contains more nutritious food for a horse than three pecks of common oats. The produce is most astonishing, the average being twenty-six barrels, of fourteen stone, to the Irish acre—the

exact quantity grown by Mr. Dorenzy on one acre. It was not sown till the 4th May, 1830, and was reaped early in August the same year. It is remarkably hardy, and well adapted to this climate.

A Fat Sheep.—The Ontario Repository states that a sheep was slaughtered lately by Mr. Josiah Sutherland, of Canandaigua, from which was obtained forty-seven and a quarter pounds of tallow. The wool from this sheep after being cleansed weighed six and a half pounds.

American Silk.—The Philadelphia Herald speaks of Mr. Upton, of that city, as having been for eighteen years engaged in silk manufacture. There is a gentleman in this vicinity, (Mr. Cobb, of Dedham,) who, for a shorter period, has perhaps been working as effectively as any other person in the way of experiment. He began the cultivation of the mulberry tree in 1826; and since that time, notwithstanding the nature of the soil, which is not the most favorable, has extended his operations so much as to be now in the habit of bringing to the Boston market American silk, manufactured, to the amount of about a hundred dollars a week, the year round. Recently he has introduced the great improvement of raising his trees from *slips*, by which he gains two years in the growth. Those planted by him the last spring, we understand, have grown over four feet already. The mulberry, in this particular, excels all other trees.—[Boston Mercantile Journal.]

Great Corn Race for One Thousand Dollars, over the Talbot and Dorchester Course, in 1834.—This is the sort of sport we like—it is really to our *taste*. In such contests some one may win the prize, but we are confident that, unlike betters on horse races, the *losers* will all be *gainers* in the *long run*. Speed and bottom, say we, to all the competitors, and may they be rewarded for their singular choice in amusements, as was Midas, of old, for his preference in the musical contests of a brace of windy gods—may they each acquire not merely a pair, but a multitude of *long ears*. By the way, we hope, as the Cambridge Chronicle suggests, that it shall be made a condition of the race, that each competitor furnish a statement of his method of cultivation, variety of seed used, &c. &c., for the benefit of the public.

One Thousand Dollars!—Agricultural Sweepstake, for Talbot and Dorchester Counties.

A sweepstake proposed to the Agriculturists of Talbot and Dorchester counties, on one continuous acre, "a parallelogram," of "Indian corn," *shelled*, to be grown the ensuing season.

Measurement of land, and corn shelled, to be attested on oath. Twenty dollars entrance money to be paid by each competitor, on or before the first day of March, into the hands of one of the editors of the Easton or Cambridge newspapers, of which due notice shall be given, on or before said day, to Martin Goldsborough, of Talbot, or Joseph E. Muse, of Dorchester.

The stake entered shall not be withdrawn unless six shall not have entered, by the said first day of March, in which case all shall be void—nor shall the number exceed fifty.—[American Farmer.]

The Corn Husk Mattress.—The season is now approaching when farmers will have leisure to prepare mattresses from Indian corn husks. Except in winter, these are much superior in our estimation to feather beds, as being more conducive to comfort and to health; and for the information of such readers as are not skilled in the manufacture, we have prepared the following directions:

Take bright clean husks, and separate them from each other. Trim them neatly at each end with the shears; and pass them in little bunches, one at a time, through a fine hatchel, exactly in the manner that we hatchel flax.

When the mattress is to be made up, spread the tick on the floor, and over rather less than one half of it, scatter the shreds of the husks evenly, making them lie across each other, as much as possible, in every direction. This not only renders the mattress more elastic, but the shreds are less liable to collect into wads. When the whole quantity intended is scattered in this manner, turn over the upper fold of the tick, and secure it by sewing. A few bits of strong twine, as in curled hair mattresses, should be passed through in different places to keep the shreds from shifting.

We have tried stuffing the mattress by handfulls, after the tick is made up, but we prefer the mode which we have recommended.

The manufacture may serve as a preventive against drowsiness in the long winter evenings.

Means of rendering the Vine more productive.—A foreign journal, of some ability recommends four ounces of alum to be mixed with four pellets of clay, by means of a sufficient quantity of water, and the roots of the vine being uncovered on a fine day towards the end of winter, they are to be moistened with this mixture, and the earth then changed, so that what was previously uppermost shall be undermost. It is asserted that through this operation a vine produces a great additional quantity of grapes.

Rooks *vs.* Grub.—The grub of the large tipula, provincially Tom Taylor, or Tommy Longlegs, says a writer on this subject, commits its ravages chiefly in the first crop, after the breaking up of the grass land, also after clover, and after beans; the fly from which this insect is produced, having deposited its eggs on the soil amongst the grass, clover, or beans. I endeavored some few years ago to acquaint myself with the natural history of this insect, and I was so successful as to ascertain the different stages of existence through which it passes—the fly, the egg, the grub, and the crysalis—as well as the season of the year when the different changes take place, and some degree of usefulness was the result. I found that it took the fly state about the beginning of the month of August; I therefore concluded, as we got our clover hay from the land a little after midsummer, that if we ploughed the clover stubble any time after that and before the month of August, it would be nearly free from the grub, as instinct has directed the fly not to leave its eggs upon the naked soil, where no living vegetable is growing. I know of no application to the land that will in any degree destroy the grub, but we are much indebted to the rook, and a variety of other birds, for keeping its depredations within limited bounds. A family of rooks would consume 3,847 grubs per day; supposing the consumption to be continued throughout the year, it would amount to 1,404,155; and supposing a grub to destroy as many wheat or other plants as might grow upon a space of ground equal to nine inches square, a family of rooks would preserve from destruction more than two acres of corn. If we extend our ideas further, and suppose all these grubs to live and propagate their species, it appears to me more than probable, that if this one species of bird alone were extinct, the labor of the husbandman would be nearly, if not altogether, in vain.

Professor Henry's Magnet.—An artificial magnet has recently been constructed by Professor Henry, of Princeton College, which far surpasses in power every thing of the kind. A number of interesting experiments on the subject of electro-magnetism, were exhibited by means of this wonderful instrument, in the presence of the students, and a large number of gentlemen assembled to attend the commencement.

Upon one trial of its strength, it was found to be capable of raising between three and four thousand pounds, and we learn that, with some farther modifications of the apparatus, the magnet will probably be able to sustain upwards of four thousand pounds.

Professor Henry has also made important improvements in the construction of the galvanic battery, when it is to be applied to the production of a magnetic power. The particulars of his improvements we are unable to explain, but, for the sake of science, we hope that this gentleman will soon give to the public a full account of the improvements, and of their important results.—[New-York Standard.]

Wool in England.—Mr. Arthur Young calculated the number of sheep in England alone at nearly 29 millions, and the value of the whole growth and labor of wool produced in Great Britain and Ireland at £17,695,529, furnishing employment to about a million and a half of people. However, if we estimate the number of sheep in the whole Island of Great Britain at 28 millions, producing at an average of five pounds weight of wool each, or 140 millions of pounds in all, equal to 583,333 packs, and worth at the rate of 8d. per lb., or £8 per pack, £4,686,664., this is acknowledged to be pretty near the truth. There is also imported into England from Germany, Spain, New South Wales, and other countries, from twenty to twenty-five millions of pounds weight of foreign wool. The value of this wool may be estimated at a higher price than that of English wool; we will, therefore, take it, on an average, to be worth 1s. per pound, or £1,250,000; the value of English and foreign wool manufactured in England will therefore be £5,936,664. If the value of the raw material is quadrupled by the labor employed in manufacturing it into cloth, the growth and labor together will amount to nearly 24 millions sterling, of which nearly one half is exported in a manufactured state, the remainder being consumed in the United Kingdom.

New Plaster Bed.—An inexhaustible bed of superior gypsum or plaster has been discovered on the Cascadilla, near the village of Ithaca, and proves equal to that from Nova Scotia.

General Lafayette has sold to three gentlemen of Florida, the township of land granted to him by Congress. The price is not mentioned, but the land is is described by the Floridian as the very best in the territory; and the sale and settlement of the tract, it is believed, will add very much to the prosperity of Tallahassee, in the immediate neighbourhood of which it lies.

DUTCHESS COUNTY PORK.—The following article from the Poughkeepsie Journal speaks for itself; but it would probably have spoken with more force to some farmers if the manner and expense of fatting the hogs had been given. We have a Nashville paper before us, complaining that the farmers in that quarter lose money by fatting hogs. They give their hogs unshelled corn. We presume they in Dutchess make the business profitable. Is it in the breed, or in the feeding, or in both? We should like to let the Tennesseans know how we manage "down east."

Dutchess County has long been famous for her very superior pork, and the present season has produced as fine as we ever beheld. Mr. John Klapp, of this village, called our attention a few days since to an excellent lot he had just purchased of Roswell Benedict, Esq. of La Grange. There were 12 in number, small boned, but very fat, as will readily be believed when we state that the average weight of the 12 was 340 pounds. Mr. Benedict informed us that his whole lot consisted of 16, which averaged 333 pounds. Some of them considerably overrun 400 lbs.

At the same time our attention was called to a still better hog than the preceding, fatted by Mr. Isaac B. Clapp, of La Grange, it was but 10 months old, uncommonly small boned, and weighed 340 pounds. It was of the Mocho breed, and certainly exceeded any thing of the kind we have before seen.

We are informed that Mr. Andrew Lake, of Sharon, fatted and brought to this market 21 hogs, the average weight of which was 351 lbs.

SALT FOR SHEEP.—Instances have occurred in which sheep are supposed to have been killed by eating too much salt, and, we believe, in winter. The following extract from the Northern Farmer, the writer of which advances the opinion, and from experience too, that salt should not be given to sheep in winter if fed on dry food:

"Daubenton recommends salt to be given to sheep in France, in cold weather, also when the weather is foggy, or when it rains or snows: but says, it should be given in small quantities, as too much heats or injures them. Livingston, however, informs us, that in Spain no salt is given to the travelling flocks in the winter, nor on their journey; but when they arrive at the place of their summer pasture, they are allowed as much as they will eat. No reason, however, is assigned for not giving salt in the winter; but much, undoubtedly, may be inferred from the uniform practice, in this respect, of the shepherds of Spain. Such authority is, no doubt, a sufficient warrant for trying the experiment. It will probably be a safe one; and may result in important benefits to the owners of flocks.

POTATOES FOOD FOR HORSES.—An Irish writer on husbandry, whose name is Martin Doyle, and whose works were published in Dublin in 1830, has the following remarks:

With respect to potato-feeding for horses, I recommend it from an experience of some years. My horses are old (one of them at least 20 years of age), but they are in high spirits and condition, from having every evening after work, excepting during the soiling months [when grass &c. was cut and carried to them,] an abundant supply of boiled potatoes (warm) regularly given to them; but as the authority of T. C. Curwen, Esq. M. P. of Workington Hall, Cumberland, is infinitely more valuable than mine on this subject, I shall quote the following passages from his 'Agricultural Hints.'

'It requires from 5 to 6 hours for a horse to masticate a stone [14 lbs.] of hay, while he will eat a stone of potatoes in 20 minutes or less. The saving of 4 hours for rest, is alone sufficient to produce the greatest difference in the health and condition of the animal. After great fatigue also, a horse would be tempted to take warm food when he would not eat hay. I have at this time in my works, horses which were purchased six years ago of a farmer, who was selling off his stock as worn out and of little value, and which are yet able to do their work with the best horses I have. I think there is little doubt of the life of this valuable animal being considerably prolonged by this mode of feeding—I have begun to mix an equal quantity of cut straw and potatoes; racks are, according to this mode of feeding, as unnecessary as they are productive of waste—for to save trouble they are always filled, and what is not eaten is always so tainted with the breath of the animal as to be wasted.'

Probably steamed mangel wurtzel, and other roots, would be valuable as food for horses.—[N. E. Farmer.]

SALEM, Nov. 13, 1833.

NEW CHRYSANTHEMUM: *To the Committee of the Massachusetts Horticultural Society on the Cultivation of Ornamental Plants, &c.*—GENTLEMEN: Permit me to introduce to your notice a new and distinct variety of the Indian Chrysanthemum. The just celebrity of numerous beautiful cultivated productions of this plant will render, I trust, my remarks worthy of your attention.

History.—In the fall of 1831 a small lot of East India plants, via Macao, were received by Mr. J. M. Ives, of this town. Among them was this Chrysanthemum. An accompanying letter stated that it was lately introduced at Macao from Japan, and considered as new and rare; being only in the private collection of a gentleman. It was not till the autumn of 1832 that it displayed its flowers. By the generosity of its proprietor, it was soon gratuitously distributed; and one of the same plants, I am informed, was this year exhibited in full flower, at Mr. Barrett's seed-store and agricultural rooms, Boston.

Description.—"Chrysanthemum sinense." Lin. "Chrysanthemum Indicum?" Variety: "C. Bellidiflorum, daisy flowered Crysanthemum," Russell. Stem: suffruticose, branched—branches spreading. Leaves: small, pinnatifid, slightly pubescent beneath. Flowers: pedunculed, mostly in pairs; reddish brown; small. Peduncules furnished with slender bractes; pubescent, as are also the young branches. Calyx, imbricate, slightly scarious. Fertile florets, prominent, forming an elevated centre. Seeds—?

Observation.—It is obvious that this pretty variety must recommend itself to cultivation, remarkable as it is for its dwarf stature and corymbosemode of growth. The flowers, too, are remarkably small, bearing no faint resemblance to "Bellis perennis," or common "daisy," from which I have ventured to give it a name. Should any farther inquiry be made concerning its history, &c. I can only refer to Mr. Ives, bookseller, Salem, who certainly deserves, at least, the sincere thanks of every lover of ornamental plants, for the care and liberality which he has displayed.

I remain, Gentlemen, yours respectfully,
JOHN LEWIS RUSSELL,
Prof. Bot. & Veg. Phys. Mass. Hort. Soc.

BAYBERRY BARK.—The bark of the root of the bayberry bush, which grows so plentifully in the woods and waste fields of this county, has become of late quite an article of traffic. We learn that it is used at the manufactories for the purpose of dying. In the town of Harwich, we are informed that a great quantity of this bark, (perhaps 30 tons,) has been collected during the past season by the women and children, who obtain at the stores three cents per pound for it. It is sent to Taunton, Fall River, and other manufacturing places, where it is sold for 12½ cents, and in some instances much higher. It is also used for medicinal purposes. This bark is easily obtained; the bushes grow in a light soil, the roots near the surface; they are pulled up with little strength and dried, and then the bark flies off with a gentle pounding. We believe this is the greatest benefit this county has ever received from the "American System."—[Barnstable Patriot.]

PREPARING MOLASSES FOR FRUIT.—As economy is the order of the day, permit me through the medium of your paper to communicate to our ladies a receipt for preparing molasses for preserving fruit, &c. which renders it much better suited for that purpose than a syrup prepared from the best loaf sugar, as it is not so liable to candy, nor (if well prepared) to ferment.

Take 8 lbs. molasses, bright New-Orleans or Sugar House, 8 lbs. pure water, 1 lb. coarsely powdered charcoal. Boil for 20 minutes, then strain through fine flannel, double—put it again in the kettle with the white of an egg, and boil gently, till it forms a syrup of proper consistence, and strain again.—[Virginia Herald.]

HITCH YOUR HORSES.—A case was tried last week, at Hartford, Conn. which it may not be unimportant for those who carelessly leave their horses unhitched in the street to hear of. It appeared that two gentlemen got out of a gig, and went into a store, leaving their horse loose. The horse started, ran on the sidewalk, and against a person who was on it, threw him down and hurt him seriously, so much so that he was compelled to keep his house all winter. He brought an action against the person who had the gig, and has recovered $500. The principal point in the testimony was as to the horse being hitched, and it being proved that he was not, the jury gave exemplary damages.—[Poughkeepsie Telegraph.]

THE WAY TO MAKE A HORSE DROWN HIMSELF.—One of our most judicious farmers lost a valuable pair of horses last week in the Connecticut river. While working in the meadows, the horses were unloosed from the team and allowed to wander about, each one with his head fastened to his foot and then tied together. In this manner they went to the river, it is supposed to drink, and going into the river but a few steps, brought their noses, which were tied closely to their feet, under the water. This occasioned strangulation, and in a short time they were found drowned in less than *three feet of water!*—[Northampton Courier.]

MORUS MULTICAULIS.—The editor of the American Farmer gives it as his opinion, that this mulberry will entirely supercede the Italian white; that those who set out orchards and hedges of the former will be enabled to make silk so much cheaper as to compel those who have set out the white to dig them up.

BUTTER IN NEW-YORK AND LONDON.—On the supposition that half a pound of butter is consumed by each inhabitant of this city, in a week, 6,500,000 pounds would be required in a year. This, at 20 cents per pound, amounts to $1,300,000. This sum is considerably less than that paid by the inhabitants. Allowing 150 pounds to each cow, 43,333 cows would be required. The following we take from an English paper.

"Butter is very extensively used in this and most other northern countries: that of England and Holland is reckoned the best. In London, the butter of Epping and Cambridge is in the highest repute: the cows which produce the former, feed during summer in the shrubby pastures of Epping Forest; and the leaves of the trees, and numerous wild plants which there abound, are supposed to improve the flavor of the butter. It is brought to market in rolls from one to two feet long, weighing a pound each. The Cambridgeshire butter is produced from cows that feed one part of the year on chalky uplands, and the other on rich meadows or fens: it is made up into long rolls like Epping butter, and generally salted or cured before being brought to market; the London dealers, having washed it, and wrought the salt out of it, sell it for Epping butter.

"The butter of Suffolk and Yorkshire is often sold for that of Cambridgeshire, to which it is little inferior. Somersetshire butter is thought to equal that of Epping; it is brought to market in dishes containing half a pound each; out of which it is taken, washed, and put into different forms, by the dealers of Bath and Bristol. Gloucestershire and Oxfordshire butter is very good; it is made up in half-pound packs or prints, packed up in square baskets, and sent to the London market by waggon. The butter of the mountains of Wales and Scotland, and the moors, commons and heaths of England, is of excellent quality when it is properly managed; and though not equal in quantity, is superior to that produced by the richest meadows.

"Considerable quantities of butter are made in Ireland, and it forms a prominent article in the exports of that country; it is inferior to that of England. Some of the best Irish butter brought to London, after being washed and repacked, is sold as Dorsetshire and Cambridge butter.

"The salt butter of Holland is superior to that of every other country; large quantities of it are annually exported. It forms about three-fourths of all the foreign butter we import.

"The production and consumption of butter in Great Britain is great. The consumption in London may be averaged at about one half-pound per week for each individual, being at the rate of 26 pounds a year; and supposing the population to amount to 1,450,000, the total annual consumption would be 37,700,000 pounds, or 16,830 tons: but to this may be added 4,000 tons for the buttor required for the victualling of ships and other purposes, making the total consumption, in round numbers, 21,000 tons, or 47,040,000 pounds, which, at 10d. per pound, would be worth £1,960,000.

"The average produce per cow of the butter dairies is estimated by Mr. Marshall at 168 pounds a year; so that, supposing we are nearly right in the above estimates, about 280,000 cows will be required to produce an adequate supply of butter for the London market.

"But the consumption of butter in London has sometimes been estimated at 50,000 tons; which would require for its supply 666,000 cows!"

USEFUL INSTRUCTIONS REGARDING THE MILKING OF COWS.—The operation of milking is performed differently in various parts of the country. In some, the dairy-maid dips her hand into a little milk, and by successively stripping the teat between her finger and thumb unloads the udder. The plan, however, is attended with the disadvantage of irritating more or less the teat, and rendering it liable to cracks and chaps, which are followed by inflammation, extending to the rest of the quarter. This accounts for the disease occurring more frequently among the cows under the charge of one milker than it does in those which are under the charge of another; and, as this practice is more common in some parts of the country than in others, it also accounts for the disease being more common in these parts. This plan of milking, where the irritation is not sufficient to excite the extent of inflammation to which I have alluded, frequently produces a horny thickening of the teat, a consequence of the cracks and chaps, which renders it more difficult to milk than when in its natural state; and, at the same time, predisposes to inflammation, when any cause occurs to set it up. These effects may be, and are almost entirely avoided, by the more scientific plan of milking adopted in other parts of the country, where, instead of drawing down or stripping the teat between the thumb and fingers, the dairy-maid follows more closely the principles which instinct has taught the calf. (The calf jerks its nose into the udder, and forces down the milk.) She first takes a slight hold of the teat with her hand, by which she merely encircles it; then lifts her hand up, so as to press the body of the udder upwards, by which the milk escapes into the teat, or if (as is generally the case when some hours have elapsed between milking-times) the teat is full, she grasps the teat close to its origin with her thumb and fore finger, so as to prevent the milk which is in the teat from escaping upwards; then making the rest of the fingers to close from above downwards in succession, forces out what milk may be contained in the teat through the opening of it. The hand is again pressed up and closed as before, and thus, by repeating this action, the udder is completely emptied, without that coarse tugging and tearing of the teat, which is so apt to produce disease.—[Quarterly Journal of Agriculture.]

A GOOD MINCE PIE FROM SAWDUST.—Don't be frightened!—A neighbor of mine once desirous of obtaining a steak from his store of beef found it very hard frozen, which rendered it difficult to cut. He therefore used a common hand saw, and sawed it on a clean cloth; his wife observed that she thought the meat thus made fine by the saw might be the happiest mode of preparing it for a pie. She took it and added the other usual ingredients, and it made even a better and richer pie than one made by boiling and chopping, &c. which trouble was saved. Sawing is clearly the easiest mode of obtaining a steak when the meat is frozen; the nutritive qualities of the meat lost in boiling are saved in this way, and of course the richer and better the pie.—[Maine Farmer.]

TO MAKE RICE PUFFS.—To a pint of the flour add a tea-spoonful of salt, a pint of boiling water, beat up four eggs, stir them well together, put from two to three spoonfuls of fat in a pan, make it boiling hot, and drop a spoonful of the mixture into the fat, as you do in making common fritters.

RICE GRIDDLE CAKES.—Boil one large cup of whole rice quite soft in milk, and while hot stir in a little flour, rice flour, or indian meal; when cold, add two or three eggs and a little salt. Bake it in small thin cakes on the griddle.

Besides the above it is good for children; and may also be used for thickening soups, custard pies, &c.

The article may be found for sale in small kegs, or buckets of 50 lbs. at the Rice Mill, South Boston. Orders left in box in the arena of City Hall. *Warranted sound and pure.*—[N. E. Farmer.]

TO MAKE LOAF RICE BREAD.—Boil a pint of rice soft, add a pint of leaven, then three quarts of the flour, put it to rise in a tin or earthen vessel, until it has risen sufficiently, divide it into three parts, then bake it as other bread, and you will have three large loaves.

TO PRESERVE SUET FOR A LONG TIME.—As soon as it comes in choose the firmest parts of it; carefully separate all the skin and veins; put in a saucepan at such distance from the fire as to melt it slowly without frying. When in a hard cake, wipe it quite dry, fold it in fine paper, put it in a bag, and keep it in a cool place; and it may be preserved in a sound state for a year.—[Northern Farmer.]

ADULTERATED FLOUR.—When you are about to try the quality of flour, proceed as follows:—grasp a handful, give it a sharp squeeze, and set the lump on the table. If it holds together, and preserves the form of the cavity of the hand, the flour is good; but if the lump soon falls down, the flour is adulterated. When the adulterant is ground bones, or plaster of paris, the lump of flour falls down immediately; but when whiting or pipe-clay is present, the lump keeps its form a little longer. The presence of much bran is detected by the color and feel of the flour; but in this case also the grasped specimen soon crumbles. Genuine flour retains the fine impressions of the grains of the skin much longer than any which is adulterated. Rub a little of the flour between the palms of your hands when they are moist: if you find any resistance, the flour contains whiting. Moisten the fore finger and thumb with a little sweet oil, and rub a small quantity of the flour between them. If the flour is pure, you may rub it for any length of time without its becoming sticky and adhesive; the flour in the meantime becomes nearly black. But if whiting be present, the flour will soon be worked up into the consistence of putty, which will retain the original white color, or nearly so. Mix a little flour with water in a tumbler, then drop a little pneumatic acid into the water; if any chalk or whiting be present, an effervescence will be produced by the discharge of carbonic acid gas.—[Domestic Chemist.]

SEED-WHEAT.—The following, from the Report of Select Farms, in the Library of Useful Knowledge, is well deserving of consideration:

We give the subjoined remarks for the consideration of our readers; but we must say, that we can only attribute the great absence of disease here mentioned to the exposed situation of the farm, joined, probably, to a careful selection of seed, and other local and peculiar causes.

"The seed is selected of the best quality, of the *previous year's growth*, and perfectly clean and free from all other seeds. The red straw lammas is the kind that is always sown upon this farm. No such thing as smut is ever known upon this farm, which is prevented, we believe, by the invariable use of old wheat for seed. When wheat that has been harvested in August is sown again on the 1st of September, it has not had time to be so well hardened, and so perfectly prepared for vegetation as it ought to be; and, therefore, does not produce a crop so perfect in every respect, as old seed; and hence the smut. Nor is there often either rust or blight on the wheat produced on this farm, which is probably owing to its being much exposed."

On Breeding Horses. By T. A. KNIGHT, Esq. of Downton, Herefordshire. [From the Farmer's Magazine.]

"Having introduced for the use of my tenants a high priced stallion, of the breed of the large London dray horse, I wish to state to agriculturists the grounds upon which I anticipate much advantage from the introduction of so large an animal. He will, I have reason to believe, be, when full grown, not less than seventeen hands high, and very compact in form.

"I conceive myself to have proved, by many experiments, of a part of which an account was published some years ago in the Philosophical Transactions, that the length of the legs of the offspring of all those animals which nature has intended to accompany their parents in flight, at an early age, is governed wholly by the habits of the female parent. This tribe of animals comprehends the horse, the cow, the sheep, and deer, and many others. If the female parent be of low stature, and descended from a breed of a similar form and size, the length of the legs of the offspring will be short, and will not be increased in length, though they will in strength, by any influence of its male parent, however tall and large that may have been; and the converse of this proposition will be found to be equally true.

"The experience of almost every farmer must have taught him that horses with drop shoulders and bodies, and capacious chests, are more capable of bearing hard and long-continued labor than those of which the shoulders, and of course the chests, are shallow and the legs long; but comparatively few know how rapidly the powers of draught of any animal mechanically decrease with the increasing length of the legs, comparatively with the depth of the shoulders and body. If a horse, proportioned as English horses now generally are, be sixteen hands high, his fore legs, measured from the elbow joint, will be about three feet, or nine hands high, and his shoulder about two feet four inches, or seven hands high. If such a horse be able to raise, by means of a cord passed over a pulley, a weight of a thousand pounds, another horse, similar to that in every other respect, except that of having its legs eight inches shorter, would, on account of the mechanical advantage of its form, be able to raise twelve hundred and fifty pounds, or one fourth more, with considerable less exertion; for his power would increase with the diminished length of his legs, nearly in the same proportion as the power of the weight upon the longer arms of the steel-yards is increased by being made to recede from the point of suspension: and if the length of the leg of such horse, comparatively with the depth of the shoulder, were further diminished, its power would increase in an accumulating ratio. The enormous strength of a bull of mature age affords familiar evidence of the truth of these positions; and I doubt much whether the offspring of a Norwegian pony, and a strong and low draught mare, would not be found capable of drawing a heavier weight up hill, to any considerable distance, than the largest horse of the ordinary form and proportion; whilst it would not, probably, exceed two-thirds of its weight, nor require more than two-thirds the quantity of food; and it would possess much more activity, and be much less subject to accidents. And I have good reason to believe that more perfect animals, for supplying mankind with food, may generally be obtained by cross-breeding from females of small, and male animals of large size, than from any breed of fixed and permanent habits, relatively to size."

HABITS OF THE EARTH WORM.—According to White, of Selborne, earth worms are "great promoters of vegetation, which would proceed but lamely without them, by boring, perforating, and loosening the soil, and rendering it pervious to rains and the fibres of plants, by drawing straws and stalks of leaves and twigs into it, and most of all by throwing up such infinite numbers of lumps of earth, called worm-casts, which being their excrement is a fine manure for grain and gra s." He adds, "earth worms make their casts most in mild weather, about March and April." The fact is, that the casts are not in their excrements, but a sort of masonry, somewhat rude, indeed, but not the less efficient in protecting their burrows, both from too much rain, which would destroy them, and from the intrusion of enemies. The reason that they are more observed in spring, seems to us to arise from their anxiety to protect their eggs, which are then deposited, as well as from the scarcity at this period of leaves and other vegetable refuse. They always prefer some vegetable matter for the closure of their hole, when it can be obtained, because when it has arrived at a certain stage of decay, it forms their choicest dainty, and hence it is that they become so destructive to gardens, to seedling and picked out plants, by unrooting them and dragging them into their holes. But they are not contented with a leaf, a blade of grass, a straw, or a fallen blossom, till they have first constructed an out-work of clay, into which these may be fitted.

By cautiously removing the leaf door and the clay out-work of an earth worm's hole, we have repeatedly seen it re-constructed. The worm in such cases perceiving from the free entrance of air and light that the barricade is gone, advances (not without manifesting some fears of danger) to the threshold, and soon sets about repairing the damage. For this purpose it sucks a few grains of earth into its mouth, moistens it as the swallow does its mortar, with saliva, and using its broad tongue for a trowel, plasters it round the mouth of the hole, smoothing it very neatly on the inside, but leaving it rough without, like the swallow's nest. When it has built this clay vestibule to its mind, it next searches about at a great distance for a leaf or a stone, and if it do not find one, it is forced to complete the closure with clay. In the same way we have observed that a marine species, which lives in the sands within the tide mark, being no less afraid of drought than the earth worm is of rain, (both dislike light,) constructs a similar outwork of agglutinated sand over its hole every time the tide ebbs.—[Notes of a Naturalist.]

CONSUMPTION OF STAPLE ARTICLES IN ENGLAND.—The following is an accurate estimate of the home consumption of England in the great staple articles of commerce and manufactures. Of wheat, 15,000,000 quarters, or 120,000,000 bushels, are annually consumed in Great Britain—this is about a quarter of wheat to each individual; of malt, 25,000,000 bushels are annually used in breweries and distilleries in the United Kingdom, and there are 46,000 acres under cultivation with hops; of the quantity of potatoes and other vegetables consumed we have no accounts; of meat, about 1,250,000 head of cattle, sheep, and pigs, are sold during the year in Smithfield market alone, which is probably about a tenth of the consumption of the whole kingdom; the quantity of tea consumed in the United Kingdom is about 30,000,000 pounds annually; of sugar nearly 4,000,000 cwts., or about 500,000,000 pounds every year, which is a consumption of 20 pounds for every individual, reckoning the population at 25,000,000; and of coffee about 20,000,000 pounds are annually consumed; of soap 114,000,000 pounds are consumed; and of candles about 117,000,000 pounds; of sea-borne coals alone there are about 3,000,000 chaldrons consumed in England and Wales, and it is estimated that, adding the coals of the midland counties, each person of the population consumes a chaldron throughout the kingdom; of clothing we annually manufacture about 200,000,000 pounds of cotton wool, which produces 1,200,000,000 yards of calico, and various other cotton fabrics, and of these we export about a third, so that 800,000,000 yards remain for home consumption, being about 32 yards annually for each person; the woollen manufacture consumes about 30,000,000 pounds of wool; of hides and skins about 50,000,000 are annually tanned and dressed; of paper about 50,000,000 pounds are annually manufactured, which is about 2,000,000 reams of 500 sheets to the ream. —[Farmer's Magazine.]

NEW WRITING PAPER.—A new writing paper has just been introduced, which, by means of a chemical operation it undergoes, has the singular property of becoming perfectly black whenever it is touched with any fluid. It is only necessary, therefore, to write on this paper with a pen dipped in clean water, to produce a distinct and legible communication.—[London paper.]

THOMAS POPE died, on the 14th of July, at Old Windsor, in his 97th year; he had followed the employment of a shepherd, with little exception, from an age when he received two pence per day, and discharged the trust reposed in him with great fidelity and honesty. He was an example to others in the humble station of life in which he was placed, having brought up a large family without parochial aid, for which he only applied when his age rendered him unable to live by the fruits of his labor. His known good character procured him many friends, who supplied every want his advanced age required. At his particular wish his crook and bell were buried with him—the crook in one hand and the bell in the other. He was followed to the grave by his family; and his master paid the last mark of respect to so faithful a servant, with many of the villagers in the mournful train.

SUGAR FROM BEETS.—A writer in Goodsell's Farmer, who has been engaged in constructing machinery for the manufacture of this sugar in Europe, proposes to commence business at Rochester. He makes the following calculation:

Cost of producing an acre,	$20 00	
Cost of manufacturing do.,	40 00	
		60 00
Amount of sugar produced,	151 20	
Value of pulp remaining,	6 00	
		157 20
Nett profit per acre,		$97 20

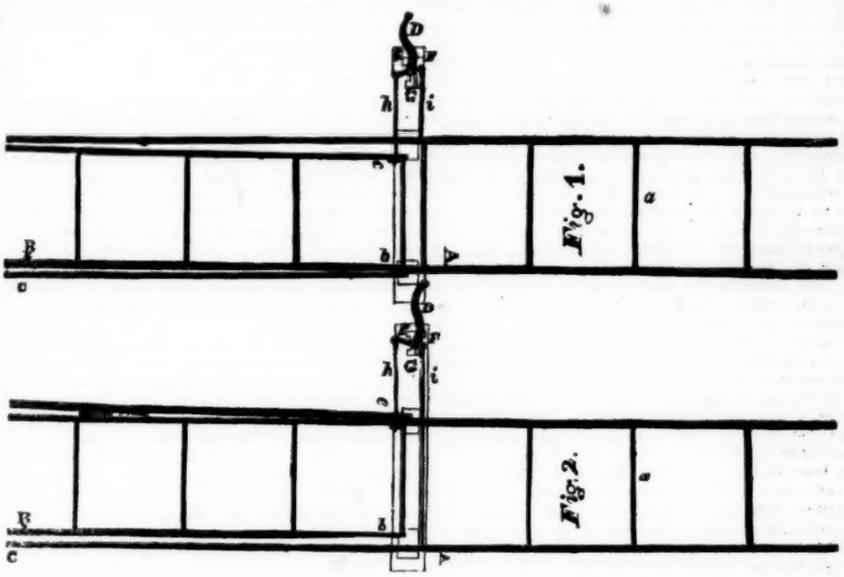
DOMESTIC ANGOLA GLOVES.—"*You can have no more of a cat than her skin,*" is an old adage, but we are now convinced that it is not a true one. A gentleman of this town exhibited in our office a few days since a pair of handsome gloves, very much of the appearance of the Angola in softness and complexion. We were rather surprized at the novelty of their being produced from the back of his common house cat, of the Maltese species. The fine hair was combed from her back at the season when she would naturally shed her coat, and the product of two years has enabled his wife to prepare this new and elegant species of domestic manufacture.—[Portsmouth Journal.]

WHITE PINE.—This tree, which constitutes the uncoined bullion and much of the present wealth of this part of the country, is the loftiest tree in the United States. It attains sometimes the height of 150 feet, or even more, with a trunk five feet and upwards in diameter. Its foliage is evergreen, light, delicate, and making an elegant appearance. It is found most abundant between the forty-seventh and forty-third parallels of latitude, along the Alleganies to their south-western termination, and in its greatest glory west of the Rocky Mountains, on the river Oregon. On the head waters of the Allegany is cut all the pine destined to supply not only the towns along the Ohio, but also the New-Orleans market, 3000 miles distant. On the head waters of the Delaware are large forests of white pine, which are floated in spring down the waters of that river, and the west branch of the Susquehannah, for the supply of the cities and towns in that quarter. The shores of Lake Champlain, and the banks of the rivers flowing into it, abound in this kind of pine, which is partly floated down the St. Lawrence to Quebec, and partly through the northern canal to Albany, whence it is distributed down the Hudson. But Maine furnishes about three-fourths of all the white pine lumber exported from the United States, and the Penobscot river is the centre of this trade, and hereafter must furnish the main supply in the lumber market. Throughout the northern states, about three-fourths of all the houses are built chiefly of this material, and the ornamental work of nearly all the rest is composed of it. For masts and spars its use is almost universal throughout the middle and northern states; and owing to its lightness, its loss could not be supplied without considerable difficulty. The Riga masts are said to have more strength; but the English derive most of those in the merchant service, and yards and bowsprits for the navy, from New-Brunswick and Canada. As the sources of supply are annually drying up, and the demand is constantly increasing, the pine timber lands of our state are becoming invaluable.—[Bangor Rep.]

FEROCITY OF CATS AT TRISTAN D'ACUNA.—When the first settlers arrived here, they brought with them several cats; some of which unfortunately escaped into the bushes, and have increased so rapidly, that they have become quite a nuisance. Poultry had run wild, and the climate was so congenial that they multiplied prodigiously, and were to be found in all parts of the island in abundance; but since the cats have been introduced the poor fowls disappear rapidly.

Indeed, these wild cats come so near the settlement as to attack and carry off the domestic poultry. I was out a few mornings ago, when the dogs caught one upon the beach. The nature and appearance of the animal seem quite changed; all the characteristics of the domestic cat were gone: it was fierce, bold, and strong, and stood battle some time against four good dogs before it was killed.

ANECDOTE.—You may have heard an anecdote mentioned by the writer of a book of travels, in illustration of the paternal character of the government of Denmark. An Englishman who had brought some wild beasts to Copenhagen was in the habit of putting his head into the mouth of the lion. The police interfered to prevent an act fraught with danger to life; but the proprietor, who made money by the exhibition of a man's head in a lion's mouth, complained to the British minister. The only answer he could obtain was, that in Denmark human life must not be exposed to such a risk. The king's regard for the security of his subjects' personal property is manifested by another law, which prevents a foreigner from obtaining the necessary signature to his passport, till he produce a document from the landord of his inn certifying that he is not in debt. [Elliott's North of Europe.]



Plan for Railroad Turnouts. [Communicated by the Inventor for the American Railroad Journal, and Advocate of Internal Improvements.]

The advantages that this plan of turnout has over the various plans now in use consist in the great diminution of curvature, viz. instead of moving the portable end of the bars, A A, sufficiently to form a connection with the double track, which must be sufficient to give clearance to the flange of wheels between the rails, as in the present mode, the rails A A move only one inch, and, as per description of diagram, one rail of the turnout and one of the single track move alternately into its place, to form the required connection with the bars A A, and out of its place to give clearance to the flange of wheels; the objection to the bars *b* and *c* being loose at one end is overcome by the wheels taking a bearing upon the permanent rail of the track, laying alongside of and nearly parallel.

A A are the portable bars, or switches, on the single track; B B are bars of the same track; and C C are the bars terminating or commencing a double track. A A connect by means of cross rods *a a a a*, *b c* are connected by cross rods, and are portable at one end in like manner to A A; the cast iron arch G, the levers E E, and the vertical shaft F, are the apparatus for working the different bars by means of the connecting rods *h i*. It may be necessary to mention that E is a double lever, and the proportion from F to either end is as one is to three. *b* and *c* compose one bar of each track, and are connected to the long end of the lever E by the connecting rod *h*. A A form bars of both tracks according to their different positions, and are connected to the short end of the lever E by the connecting rod *i*. It will readily be perceived by a reference to the diagram that, by moving the lever D, fig. 1, in the position of D, fig. 2, D and E being both permanently fixed upon the vertical shaft F, which passes through the cast iron arch G, you will move the bars A A to connect with the double track, and at the same time move the bar *c* into its proper place, which, being connected with the bar *b*, is drawn out of its place, to give clearance to the flange of the wheels, and by moving the lever D in the position of fig. 1, you bring A A back in their original positions; you move *b* against the bar C in its working position, and move *c* out of its place, to give clearance to the flange of the wheel. The bars A A have been calculated in the diagram to diverge one inch from a straight line, and by running the same curvature regularly from a tangent, the permanent end of the bar *c*, or C C, will diverge four inches from a straight line—that is, calculating the bars to be 16½ feet long by 2 inches wide—and will give 2 inches clearance for flanges of wheels and a curvature of a fraction over 2° 15′.

[*From the Edinburgh Cabinet Library, History of Arabia.*]

PASSAGE OF THE ISRAELITES THROUGH THE RED SEA.—The Gulf of Suez, the western arm of the Red Sea, has been rendered famous by the miraculous passage of the Israelites. The exact spot where this event occurred, as well as the line of march and different encampments of the chosen race, have become too obscure through time and change to be traced with accuracy. Shaw and Pocoke have given routes of their journeyings, probably copied from older maps; but many of their stations must, of necessity, be matter of conjecture. The natives of the coast point out differently the valley of Baideah, nearly seventy miles down; the passage from Suez across the narrow arm that runs up to the port; and other points on the shore farther southward, opposite Ayon Mousa, and the Hammam Faraoun. Niebuhr fixes upon Suez as the spot at which they crossed. The narrow gulf before that town, he observes, appears at first sight to be only the breadth of a river in comparison with the open sea, and therefore too small to have been chosen by the Almighty as the scene of the manifestation of his power. This led him to suppose that the Israelites must have passed at some leagues southward of Suez; an opinion which he changed on measuring the breadth of the gulf at that place, which he found to be 3,500 feet, and farther north it was still wider. "If the children of Israel," he continues, "passed the sea at Kolzoum, the miracle would in deed be less than if they crossed it near Baideah. But it is a mistake to suppose that the multitude could cross here without a prodigy; for even in the present day no caravan crosses here in going from Cairo to Mount Sinai, notwithstanding that it would materially shorten the distance. It must naturally have been more difficult to the Israelites thousands of years ago, when the gulf was probably broader and deeper, and extended farther northward." This supposition of the Danish traveller fairly meets the objection, that if the Israelites had crossed at Suez, Pharaoh might easily have doubled the point, and overtaken them, without risking the loss of his army by entering the channel in pursuit. When Burckhardt left Suez the tide was at flood, and he was obliged to make the tour of the whole creek, which he says can be forded at low water; but in winter time, and immediately after the rainy season, the circuit is rendered still greater, because the low grounds to the northward, for many miles, are then inundated, and become so swampy that the camels cannot pass them. The ingenious Dr. Shaw objects to the opinion which fixes the passage opposite Ayoun Mousa, on the ground that the water there must have been too shallow to drown so many Egyptians; and this objection applies still more strongly to the theory of Niebuhr. According to the first of these learned travellers, the Israelites must have crossed lower down, opposite the desert of Shur. Supposing Rameses to have been Cairo, there are two roads, he remarks, by which they might have been conducted to Pihahiroth on the coast; the one through valleys, which are bounded on each side by the mountains of the Lower Thebais; the other, more to the northward, having these mountains for several leagues on the right, and the desert on the left, till it turns through a singular ravine in the northernmost range in the valley of Baideah. The latter he presumes to have been the course taken by the Israelites. Succoth, the first station, signifies only "a place of tents;" and Etham, the second station, he considers as probably on the edge of the mountainous district just alluded to. Here the Israelites were ordered to turn from their line of march and encamp before Pihahiroth, in the mouth of the gullet or defile betwixt Migdol and the sea. This valley he supposes to be identified with that of Baideah, which signifies Miraculous, and which also bears the name of Tiah-Beni-Israel, or the Path of the Israelites. Baalzephon, over against which they encamped, is alleged to be the mountain still called Gebel Attakah, or the Hill of Deliverance; and at the distance of 10 miles from this is the desert of Shur, where the Israelites landed. The gulf in this quarter would be capacious enough to cover a numerous army, and yet might be traversed by the Hebrew fugitives in a night; whereas lower down, from Wady Gharendel to Tor, the channel is from 10 to 12 leagues broad, which is too great a distance to have been travelled by a multitude with so many incumbrances as they carried with them. Having once entered this valley, it might well be said that the wilderness had "shut them in," inasmuch as the mountains of Mokattem would deny them a passage to the southward, while those near Suez would be a barrier towards the north. Burkhardt seems inclined to follow the opinion of Sham and Niebuhr. Referring to the distance between Ayoun Mousa and the Well of Howara, he conjectures that this is the desert of three days said to have been crossed by the Israelites immediately after their passing the Red Sea, and at the end of which they arrived at Marah. "In moving with a whole nation, the march (nearly forty miles) may well be supposed to have occupied three days; and the bitter well at Marah, which was sweetened by Moses, corresponds exactly with that of Howara. This is the usual route to Mount Sinai, and was probably, therefore, that which the Israelites took on their escape from Egypt; provided it be admitted that they crossed the gulf near Suez, as Niebuhr with good reason conjectures. There is no other road of three days' march on the way from Suez towards Sinai, nor is there any other well absolutely bitter on the whole of this coast as far as Ras Mohammed. The complaints of the bitterness of the water by the Children of Israel, who had been accustomed to the sweet water of the Nile, are such as may be daily heard from the Egyptian servants and peasants who travel in Arabia." With respect to the means employed by Moses to sweeten the waters, Burkhardt frequently inquired among the Arabs in different parts, whether they possessed any means of effecting such a change, by throwing wood into it, or by any other process; but he never could learn that such an art was known. Forskall, who travelled with Niebuhr as botanist, indicates a plant having this property, which is said to be known in the East Indies; and Burkhardt suggested the red berry of the gharkad, a shrub which grows in the neighborhood, and which he thought might perhaps effect this change in the same manner as is done by the juice of pomegranate grains. If Howara is the Marah of Exodus (chap. xv. 23.) then Wady Gharendel is probably Elim, with its twelve springs and seventy palm trees. But, as we have already observed, it is vain to reason from modern appearance. The retirement of the sea and the increase of coral shoals have so much altered the gulf, that no decisive arguments can be built on the present shallowness of the waters or breadth of the channel. We know that in former times ships entered the harbor of Kolzoum, (the Clysma or Arsinoë of the Greeks,) but in consequence of the retreat of the waters that place was deserted. Suez, which was not in existence towards the end of the 15th century, rose on its ruins. Besides, those who endeavor to account for this phenomenon by natural causes, forget that the transaction was miraculous. Even, if we suppose that the agency of the tides was employed by Providence in favoring the Israelites, the east wind, which, blowing all night, divided the waters of the gulf in the middle, laying the channel bare, as between two walls, was clearly supernatural, since the monsoon there blows constantly from the north and the south. And as this unprecedented ebb of the waters must have been supernatural, not less so was the sudden reflux by which the Egyptians were completely overwhelmed. Contrary to the generally received opinion on this subject, Lord Valentia has started a theory, that the Israelites must have crossed to the northward of Suez; as the presumption is, that the marshes, which extend for about twenty-five miles in that direction, were then overflowed with water. This supposition contains nothing inconsistent with Scripture history or with natural appearances; and it removes a difficulty which Dr. Shaw could not reconcile, except by alleging that Josephus had been guilty of making "too hasty statements," in causing the children of Jacob, encumbered as they were with their families, cattle, baggage, and kneading-troughs, to perform a march of ninety Roman miles in three days. The remembrance of this memorable transaction is preserved in the local traditions of the inhabitants. The wells of Moses (Ayoun Mousa) and the Baths of Pharaoh (Hammam Faraoun) are associated with the names of the Jewish deliverer and the Egyptian monarch; and the superstitious Arabs call the gulf the Bahr el Kolzoum, or Sea of Destruction, in whose roaring waters they still pretend to hear the cries and wailings of the ghosts of the drowned Egyptians.

NEW TARIFF.—The Act of Congress of 2d March, 1833, commonly called Mr. Clay's bill, goes into operation this day. All articles subject to duty, either specific or ad valorem, which pay more than 20 per cent. on the cost, will be entitled to a reduction of 10 per cent. of the excess. For example: if the duty amounts to 50 per cent., or $50, on what costs $100, the excess being $30, ten per cent. or $3, is to be deducted.

On the majority of articles the reduction will be small, while on some it will be considerable; on Brandy and Gin $5 a $6 per pipe. Wines will be entitled to the same reduction as other merchandize, and after the 4th of March next, a further reduction, sufficient to make the duty but one half what it was in 1833; and on *French* Wines a still further reduction, sufficient to preserve the distinction to which they are entitled by treaty.

The following articles, in addition to those already free, will be admitted, from this date, without the payment of any duty, viz.:

Bleached and unbleached Linens; Worsted Stuff Goods; Worsted Shawls; Other Manufactures of Silk and Worsted, and Manufactures of Silk, or of which Silk shall be the material of chief value, coming from this side the Cape of Good Hope, except Sewing Silk.

In regard to Linens, the Treasury Department has decided that the following may be imported free of duty, viz.:

Brown Rolls, Burlaps, Bretagnes, Beilfeldes, Bodanwerders, Brown Holland, wherever manufactured, Cassarillas, Creas, Crash, Cholet Linens, Cambric Linen Hdkfs., Dundee Linen Paddings, Dowlass, Damasks, Drillings, English Linen Sheetings, Estopillas, German and French Linen Sheetings, French Linen Cambrics, Flanders Linen Sheetings, similar Sheetings of other countries, Irish Linen Sheetings, Scotch Linen Sheetings, Russia Sheetings, German Linen Sheetings, Imit. Russia Sheetings, Heedens, Hessians, Irish Linens, Irish Linen Lawns, Lawns, Napkins, Osnaburgs, Platillas, Rouans, Russia Diapers, Scotch Linen Paddings, Table Cloths, Ticklenbergs, Twilled Sacking, White Rolls, Warrendorps, and generally all plain flaxen cloth, not colored, stained, dyed, striped, or checked.—[N. Y. Price Current of 1st January.]

THE COTTON CROP.—We find in the North Carolina Observer a condensed statement, showing the quantity of Cotton grown and consumed in, and exported from, the United States, during the year ending September 30, 1833. Believing it will possess interest for many of our readers, we give it a place in our columns.

The exports from New Orleans reach the enormous total of 416,877 bales, but deduct from this 14,749 bales of the crop of the previous year, &c. it leaves	bales 403,443
(Same period 1832, 322,635.)	
The exports from Florida	23,641
(Same period 1832, 22,651 bales.)	
Exports from Alabama	129,366
(Same period 1832, 126,931.)	
Exports from Georgia	271,025
(Same period 1832, 276,437.)	
Exports from South Carolina	181,876
(Same period 1832, 173,872.)	
Exports from North Carolina, (of which only 517 bales went to foreign ports,)	30,258
(Same period 1832, 28,402.)	
Exports from Virginia	30,829
(Same period 1832, 37,500.)	
Total crop of 1832-3	1,070,438
Total crop of 1831-2	987,477
Increase	82,961
The total exports to foreign ports	867,455
(Of which 630,245 bales were to England.)	
Ditto last year	891,728
Decrease	24,273

Consumption in the United States.

Quantity consumed, in	1832-3	194,412 bales.
do.	1831-2	173,800
do.	1830-1	182,148
do.	1829-30	196,512
do.	1828-9	111,850
do.	1827-8	120,573
do.	1826-7	103,483

N. B. The quantity taken for home manufacture, as shown by the above statement, does not include any Cotton spun in the Cotton growing States. We have no means of ascertaining the quantity taken for domestic use in the States south and west of the Potomac, and if we had, we are not aware of any practical use that could be made of the information.

Growth.

Total crop of	1824-5	560,000 bales.
do.	1825-6	710,000
do.	1826-7	937,000
do.	1828-9	857,744
do.	1829-30	976,845
do.	1830-1	1,038,848
do.	1831-2	987,478
do.	1832-3	1,070,438

WOMAN—A SONG—*By Barry Cornwall.*

Be gentle with woman, our heart of hearts,
Who loveth us even while life departs!
Oh, call her not fickle, nor false, nor vain!
Oh, touch not so tender a heart with pain!

What, woman,—the treasure, the gem, the flower?
The star that is bright in the wildest hour?
The bird that comes singing to stern breast?
Ah! should we not teach it to love its nest?

Come on! let us vow that they all are fair;
Let's shout of their virtues to earth and air!
Let's soothe them, and guard them, and so repay
The love that they lend in our darker day!

Oh, value their gifts beyond gifts of gold,
All you of the sterner and coarser mould;
And learn that their love, amidst toil and strife,
Is the spirit that calmeth and crowneth life!